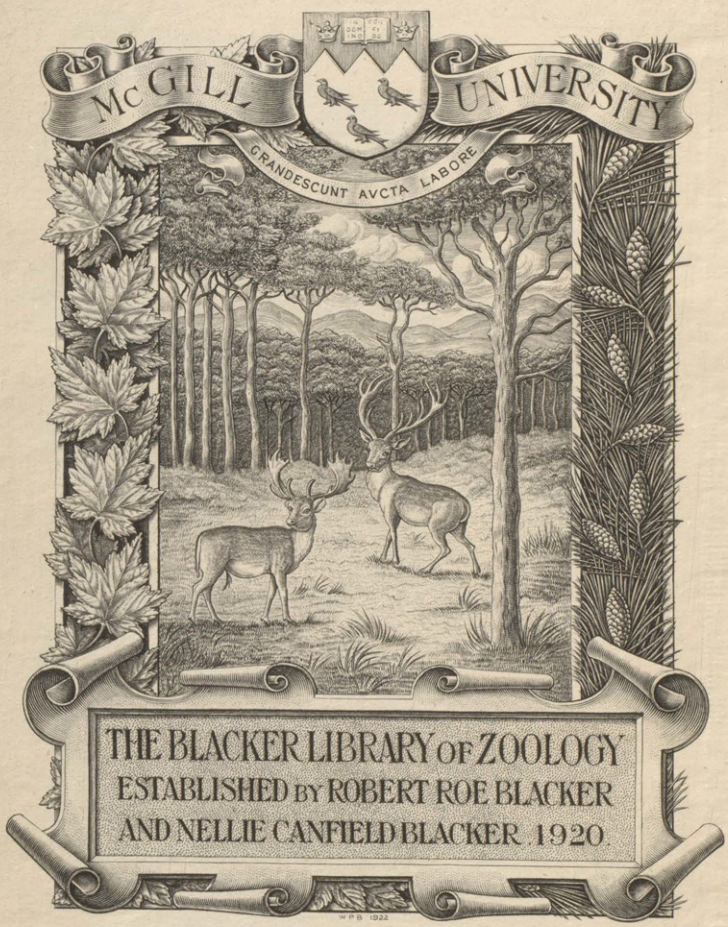
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HISTORY

OF

BRITISH BIRDS,

INDIGENOUS AND MIGRATORY.

William MacGillivray.

A

HISTORY

OF

BRITISH BIRDS,

INDIGENOUS AND MIGRATORY:

INCLUDING

THEIR ORGANIZATION, HABITS, AND RELATIONS;
REMARKS ON CLASSIFICATION AND NOMENCLATURE;
AN ACCOUNT OF THE PRINCIPAL ORGANS OF BIRDS, AND
OBSERVATIONS RELATIVE TO PRACTICAL
ORNITHOLOGY.

ILLUSTRATED BY

NUMEROUS ENGRAVINGS.

BY WILLIAM MACGILLIVRAY, A.M., F.R.S.E.

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VOL. II.

CANTATORES, SONGSTERS.

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PREFACE.

This volume contains descriptions of fifty species of Birds, constituting the ordinal group which I have named Cantatores or Songsters, and disposed into the seven families of Myrmotherinæ, Turdinæ, Alaudinæ, Motacillinæ, Saxicolinæ, Sylvianæ, and Parinæ.

In again presenting to the public some of the results of my long-continued examination of the habits and structure of the Birds of Great Britain, I may be permitted to offer a few retrospective remarks. The Introduction to the First Volume contained, among other matter, a description of the skeleton, the organs of flight, and the digestive apparatus of birds, rendered necessary by the neglect of anatomy evinced by our most esteemed ornithological writers, who in their treatises have either expressly maintained, or practically shewn it to be their opinion, that the inspection of the external parts is a sufficient guide to zoological knowledge. In avoiding this error, as I cannot but esteem it, I have not fallen into the opposite one of considering an acquaintance with the internal structure of animals alone necessary to their historian, but have entered into details as to external form, and the texture and colours of the cutaneous system, much more extended, and, if my efforts have been successful, not less accurate, than those which I have met with in any of the works alluded to, and have presented numerous facts relative to the habits and economy of the

192166

different species. The varieties exhibited in the mode of flying, the differences of manners, the dispersion and migration of birds, were introduced to notice in chapters intervening between the methodical descriptions of the orders under which I thought it expedient to arrange the species. In recalling these circumstances to mind my object is simply to connect the past with the present, and direct the attention of the reader to the continuity of plan, and similarity of execution, exhibited by the two volumes; not certainly to boast of my performances, which I am convinced require not a little of that kind of indulgence which the candid and considerate critic is always ready to apply to the productions of an artist who honestly and earnestly, although not always successfully, strives to represent nature as she appears to him.

In the present work, as in others, and in all my papers published in various journals, I have endeavoured to adapt the style to the subject, rendering it compact and precise when engaged with technical descriptions, copious and florid when treating of the actions and haunts of birds, abrupt or continuous, direct or discursive, harsh or harmonious, according to the varying circumstances of the case. My aim has been to amuse as well as to instruct, to engage the affections as well as to enlighten the understanding, to induce the traveller on the road to science to make occasional excursions tending to raise his spirits, and to shew to the public that Ornithology is not necessarily so repulsive as some of its votaries represent it.

Seated on the brow of this craggy cliff, with the glorious ocean and the boundless firmament spread out before and around him, who, that has a mind sensible to the beauties of creation, could look down upon the shelf that holds the fierce nestlings screaming over the bloody prey which their mother has just laid before them, and commence a description of the Golden Eagle in the "plain didactic style" recommended by those whose frozen heart never thaws, whose imagination is torpid, whose tuneless throat emits grave and measured croaks, but can utter no song of joy and love and praise. Hearest thou not that sweet strain which the lone thrush pours from the birchen thicket on the hill side? Does no chord in thy bosom

vibrate in symphony? The dark waters of Loch Lagan wind among the rugged capes, the brown hills are heaped in massy piles against the unclouded sky, on the sandy point stands the patient heron watching its prey, and from yon bold headland launches forth the long-winged osprey. Beautiful as these objects are, they at this moment interest you less than the melody of the gentle Mavis. When the blast of winter howls in that birch-clad valley, and heaves the billows of that now placid lake, the shrill scream of the Erne and the hoarse croak of the prowling Raven, might send a responsive thrill of savage delight through your frame; but on this lovely summer eve, when the fragrance of the wild woods is wafted to you by the dying breeze, and the sun descends behind Ben Nevis, shooting bands of softened light amid the gathering gloom of the overhanging rocks, no sounds could so harmonize with the scene as the murmur of the rippling brook, and the sweetly modulated tones of the mountain thrush.

In one of those lovely vales of happy England, where amidst orchards and corn-fields bounded by blossomed hawthorn and rows of tall elms, gleam cottages decked with roses and honeysuckles, while the spire of the village church shoots high above the beechen grove, who could listen without delight to the loud and mellow song of the dusky Merle, or the melting melody of the peerless Nightingale. Wandering by the still waters of some willow-skirted stream, on whose placid bosom reposes the water-lily, we might gaze on the tiny warbler that from a top spray pours at intervals its curiously modulated song. See, in that patch of pasture land, skirted by thickets of alder, is a brood of young water-hens accompanied by their anxious mother; and from the green corn has sprung on fluttering wings the heaven-seeking lark, from whose shrill and continuously varied warble you catch the spirit of pure cheerfulness by which it seems to be inspired.

Is there a man so dead to nature that, regardless of the leafy woods, the green fields, the gliding brooks, the rugged rocks, and the wave-washed shores, among which only can one study birds to advantage, he gathers around him the spoils of every land, arranges them into circles and groups which he imagines to be

concentric, parallel, or diagonal, measures their bills and counts their feathers, and having thus performed his task, chuckles over it with the consciousness of his being a philosopher? Let him alone; you cannot kindle his heart with a spark of ethereal fire; but come along, and let us study nature wherever we find her glories displayed. We cannot trace a bird without taking note of the plants and knolls and crags among which it lives; and if it digresses ever in its search for food, so must we digress in describing its actions.

To the adepts in systematic ornithological lore I have little to say. I presume not to instruct you, cannot hope to amuse you, and am destitute of the ambition of in any way pleasing you. No man can more admire your ingenuity than I, or be more sensible to your merits, more grateful for your good intentions, or more ready to receive your instructions; but the book of nature is open to me as it is to you, and I will try to read it without your guidance. To the lovers of living nature, my friends and fellow students, I would say: let us go together, talking by the way, imparting and receiving knowledge. You who have but commenced your journey, and whom I may without presumption consider as pupils, I am persuaded may with some advantage listen to my advice; and from you who have observed more carefully, and compared more strictly, the objects of our mutual regard, I may learn much that will interest me. To all those who, from whatever motive, may be pleased to peruse this work, I can only say that in it they will find nothing but what I believe to be correct; but there are other books on the same subject, and I earnestly recommend to them to compare with it Mr Selby's Illustrations, Mr Jenyns's Manual of British Vertebrate Animals, Mr Yarrell's History of British Birds, Mr Wood's British Songsters, Mr Mudie's Feathered Tribes, and as many more as they may find it expedient to purchase. They all differ from each other, and from this work, but all contain useful information, "setting down," as Don Quixote saith, "the father, mother, country, kindred, age, place and actions to a tittle, and day by day, of the knight and knights of whom they treat," and therefore may be consulted with advantage.

Many stars indeed have risen on the horizon of our ornithological hemisphere, some to increase in brightness, others to twinkle for a season and fade. At the present day there blaze in the south enough to form a constellation whose mingling rays send over the land light sufficient to enable the mousing owl to distinguish its prey, and the benighted traveller to escape the perils of crumbling crag, and quaking peat marsh. Mine too has appeared amid the mists of Cairngorm, the haunt of the ptarmigan and raven. There it glimmers in the north, now obscured by the cold grey clouds that cling to the summits of the mouldering cairns of red granite, bleached by the storms and sunshine of six thousand years; now sending a faint light through a ragged break in the mists, now flaring with a momentary effulgence, and anon fading into a feeble light. Yes, there it is, struggling through the sullen vapours, twinkling, glimmering, glowing; but its rays have been seen from the plains, and some have hailed it from afar. Star of the north! will thy course be toward the zenith? Art thou a vapour kindled to shed a feeble light on the land, to shoot off into an eccentric path, and be at length quenched in the foul waters of human scorn? Surely thou wilt not ever struggle amidst tempests and darkness, but a blast from the Braeriach will sweep those sullen clouds away, and leave thy path clear in the heavens. Shine on, little star, and as thou risest higher, let thy rays be brighter, and let "the traveller bless thy gentle light!"

But let us descend from the clouds, and cast our regards upon the fields. "The winter is past, the rain is over and gone, the flowers appear on the earth; the time of the singing of birds is come, and the voice of the turtle is heard in our land." Many summers have passed since I first listened to those "native wood-notes wild;" many happy days have I spent in tracing the habits of those songsters of hill and vale; and, although with much anxiety I have set myself to the task of describing them, yet that anxiety has been so mingled with hope that the labour has been grateful. May the reader, comparing my descriptions with the objects themselves, and going forth to observe them anew, approve of what he finds consistent with nature, correct what he discovers to be wrong, and give ex-

tension and precision to what he considers confined and indefinite. As in the first volume, I have in this described the objects as I have seen and examined them, always distinguishing from my own observations those for which I am indebted to others, and generally preferring notices transmitted to me by friends on whose accuracy I place reliance, to published accounts, when both referred to the same subjects, but also extracting useful observations from all accessible sources.

Judging from the reports of most of those estimable persons who have done me the honour of reviewing my first volume, and from the statements of private friends, I must conclude that the Lessons in Practical Ornithology are generally found as useful and agreeable as any other part of the work. And as in reading the history of our Songsters, to which this volume is devoted, one may naturally desire to know something of the organs of voice in these birds as well as in birds generally, I have endeavoured to describe them in an intelligible manner, referring always to the objects themselves for the information intended to lead others to pursue the same course.

To the individuals who have kindly lent me their aid on this occasion, I offer my best thanks :—To Robert Jameson, Esq., Regius Professor of Natural History in the University of Edinburgh; John J. Audubon, Esq., Louisiana; Archibald Hepburn, Esq., Whittingham, East Lothian; Mr Macduff Carfrae, Edinburgh; Mr Fenton, of the same city; and, above all, Th. Durham Weir, Esq. of Boghead, Linlithgowshire, whose contributions in recent specimens, nests, eggs, and observations have been most ample and most valuable.

W. MACGILLIVRAY.

Edinburgh, 1, Wharton Place,
1*st June* 1839.

TABLE OF CONTENTS.

Essential Characters of the Order Cantatores, and Observations respecting the Digestive Organs of Land Birds, - 1

PRACTICAL ORNITHOLOGY. FIFTH LESSON, - 9

Suburban excursion. Notes on birds and other bipeds. Vital functions of the former. Organs of respiration and voice. Lungs. Air-cells distributed through the body. Changes operated on the blood by respiration. Trachea and bronchi.

Respiratory and vocal organs of the Rook and Blackbird described in detail. Larynx and its muscles. Syrinx, its structure and muscles.

Trachea of the Brown Linnet, Brown Ptarmigan, Wood Pigeon, and Parrot.

Tube of the trachea, its rings, and the mechanism by which they are made to slip behind each other.

ORDER V. CANTATORES. SONGSTERS.

Characters of the Cantatores, - - - 39

FAMILY I. MYRMOTHERINÆ. ANTCATCHERS, AND ALLIED SPECIES, - - - - 45

Synopsis of the British Genera and Species of Myrmotherinæ, 47

GENUS I. CINCLUS. DIPPER, - - 48

1. Cinclus europæus. The European Dipper, - 50

FAMILY II. TURDINÆ. THRUSHES AND ALLIED SPECIES, 66

Synopsis of the British Genera and Species of Turdinæ, 69

GENUS I. ORIOLUS. ORIOLE, - - - 71

1. Oriolus Galbula. Golden Oriole, - 73

GENUS II. TURDUS. THRUSH, - - - 77
1. Turdus Merula. The Black Thrush, or Blackbird, 81
2. Turdus torquatus. The Ringed Thrush, or Ring Ouzel, - - - - - 100
3. Turdus pilaris. The Chestnut-backed Thrush, or Fieldfare, - - - - 105
4. Turdus viscivorus. The Missel Thrush, or Shrite, 114
5. Turdus musicus. The Song Thrush, or Mavis, 127
6. Turdus iliacus. The Red-sided Thrush, or Redwing, 141
7. Turdus varius. The Variegated Thrush, - 146

FAMILY III. ALAUDINÆ. LARKS AND ALLIED SPECIES, 150

Synopsis of the British Species of Alaudinæ, - 153

GENUS I. ALAUDA. LARK. - - 155
1. Alauda alpestris. The Shore Lark, - 159
2. Alauda arvensis. The Sky Lark, - 163
3. Alauda arborea. The Wood Lark, - 174

GENUS II. ANTHUS. PIPIT, - - - 178
1. Anthus pratensis. The Meadow Pipit, - 181
2. Anthus arboreus. The Tree Pipit, - 188
3. Anthus aquaticus. The Shore Pipit, - 194
4. Anthus Richardi. Richard's Pipit, - 199

FAMILY IV. MOTACILLINÆ. WAGTAILS AND ALLIED SPECIES, - - - - - 202

Synopsis of the British Genera and Species of Motacillinæ, 204

GENUS I. BUDYTES. QUAKETAIL, - - 206
1. Budytes flava. The Blue-headed Quaketail, 208
2. Budytes Rayi. The Greenheaded Quaketail, 212

GENUS II. MOTACILLA. WAGTAIL. 218
1. Motacilla alba. The Grey-and-White Wagtail, 221
2. Motacilla Yarrelli. The Pied Wagtail, - 225
3. Motacilla Boarula. The Grey-and-Yellow Wagtail, 235

FAMILY V. SAXICOLINÆ. STONECHATS AND ALLIED SPECIES, - - - - - 244

Synopsis of the British Genera and Species of Saxicolinæ, 246

GENUS I. ACCENTOR. CHANTER, - - 249
1. Accentor modularis. The Hedge Chanter, 251
2. Accentor alpinus. The Alpine Chanter, - 258

GENUS II. ERITHACUS. REDBREAST, - 261
1. Erithacus Rubecula. The Robin Redbreast, 263

GENUS III. FRUTICICOLA. BUSHCHAT, - 271
1. Fruticicola Rubetra. The Whin Bushchat, - 273
2. Fruticicola Rubicola. The Black-headed Bushchat, 279

GENUS IV. SAXICOLA. STONECHAT, - - 285
1. Saxicola Œnanthe. The White-rumped Stonechat, 289

GENUS V. RUTICILLA. REDSTART, - - 298
1. Ruticilla cyanecula. The Blue-throated Redstart, 300
2. Ruticilla Phœnicurus. The Red-fronted Redstart, 305
3. Ruticilla Tithys. The Black-breasted Redstart, 311

FAMILY VI. SYLVIANÆ. WARBLERS AND ALLIED SPECIES, 313

Synopsis of the British Genera and Species of Sylvianæ, 314

GENUS I. PHILOMELA. NIGHTINGALE, - 319
1. Philomela Luscinia. Brake Nightingale, - 321

GENUS II. SYLVIA. WARBLER, - - 337
1. Sylvia atricapilla. The Black-capped Warbler, or Blackcap, - - - - 339
2. Sylvia hortensis. The Garden Warbler, or Pettychaps, - - - - 345
3. Sylvia cinerea. The White-throated Warbler, or White-throat, - - - - 350
4. Sylvia garrula. The White-breasted Warbler, 357

GENUS III. PHYLLOPNEUSTE. WOODWREN, - 361
1. Phyllopneuste Sylvicola. The Yellow Woodwren, 364

2. Phyllopneuste Trochilus. The Willow Woodwren, 371
3. Phyllopneuste Hippolais. The Short-winged Woodwren, or Chiff-chaff, - - 379

Genus IV. Melizophilus. Furzeling, - - 382
1. Melizophilus Provincialis. The Provence Furzeling, 383

Genus V. Calamoherpe. Reedling, - 388
1. Calamoherpe phragmitis. The Sedge Reedling, 390
2. Calamoherpe arundinacea. The Marsh Reedling, 395

Genus VI. Sibilatrix. Chirper, - - 397
1. Sibilatrix Locustella. The Grasshopper Chirper, 399

Genus VII. Regulus. Kinglet, - - 405
1. Regulus auricapillus. The Gold-crowned Kinglet, 408
2. Regulus ignicapillus. The Fire-crowned Kinglet, 416

FAMILY VII. PARINÆ. TITS AND ALLIED SPECIES, - 418

Synopsis of the British Genera and Species of Parinæ, 420

Genus I. Parus. Tit, - - - 422
1. Parus Fringillago. The Ox-eye Tit, - 425
2. Parus cœruleus. The Blue Tit, - - 431
3. Parus ater. The Coal Tit, - - 440
4. Parus palustris. The Marsh Tit, - - 445
5. Parus cristatus. The Crested Tit, - 450

Genus II. Mecistura. Mufflin, - - 453
1. Mecistura longicaudata. The Long-tailed Mufflin, 454

PRACTICAL ORNITHOLOGY. SIXTH LESSON, - 462
Audubon, Ornithologus, and Physiophilus make a digression to the Pentland Hills, halt at Currie, and return to Edinburgh, discoursing on birds and other matters.
Thereafter Mr Weir gives an account of the Migratory Birds of West-Lothian, Ornithologus of those of Mid-Lothian, and Mr Hepburn of those of East-Lothian.
Motacilla alba and Motacilla Yarrelli compared. Budytes flava and Budytes Rayi compared. Young of Budytes flava. Song of Sky-Lark. Notes on Blackcap, Garden Warbler, Sedge Reedling, and Grasshopper Chirper.

LIST OF ILLUSTRATIVE FIGURES.

PLATES.

X. Respiratory and Vocal Organs of the Blackbird, Turdus Merula.
XI. Respiratory and Vocal Organs of the Rook, Corvus frugilegus.
XII. Respiratory and Vocal Organs of Pigeons, Grouse, and Parrots.
XIII. Digestive Organs of Cantatores.

WOOD CUTS.

Fig. 96. Digestive Organs of a Hawk, . . *page* 3
97. Digestive Organs of an Owl, . . . 3
98. Digestive Organs of a Kingsfisher, . . 3
99. Digestive Organs of a Cuckoo, . . . 4
100. Digestive Organs of a Goatsucker, . . . 4
101. Digestive Organs of a Jay, . . . 4
102. Digestive Organs of a Shrike, . . . 5
103. Digestive Organs of a Thrush, . . . 5
104. Digestive Organs of a Nuthatch, . . . 5
105. Digestive Organs of a Finch, . . . 6
106. Digestive Organs of a Chatterer, . . . 6
107. Aircells of the Rook, Corvus frugilegus, . . 17
108. Portion of windpipe, relaxed, . . . 34
109. Portion of windpipe, contracted, . . 34
110. Portion of windpipe, in intermediate state, . . 34
111. Portion of windpipe, contracted, . . 35
112. Portion of windpipe, extended, . . . 35
113. Two rings of trachea, separated, . . 35
114. Two rings of trachea, in proximity, . . 35
115. Sternum of Blackbird, Turdus Merula, in front, . 41
116. Sternum of Blackbird, Turdus Merula, laterally, . 41
117. Head and foot of Myrmothera Bengalensis, . 45
118. Head of European Dipper, Cinclus europæus, . 50
119. Wing and foot of European Dipper, . . 51
120. Nest of European Dipper, . . . 61
121. Nest of European Dipper, . . . 62
122. Sternum of Dipper, laterally, . . . 65
123. Sternum of Dipper, in front, . . . 65
124. Head and foot of Golden Oriole, Oriolus Galbula, . 73
125. Head of Young Female Blackbird, Turdus Merula, . 80
126. Head of Male Blackbird, . . . 81
127. Foot of Blackbird, ... 99
128. Head of Ring Ouzel, Turdus torquatus, . 100
129. Head of Fieldfare, Turdus pilaris, . . 105
130. Wing of Blackbird, . . . 113
131. Head of Missel Thrush, . . 114
132. Head of Song Thrush, Turdus musicus, . 127
133. Head of Redwing Thrush, Turdus iliacus, . 141
134. Head of Sky-Lark, Alauda arvensis, . . 155

		page
Fig. 135.	Foot of Sky-Lark,	156
136.	Wing of Sky-Lark,	157
137.	Head of Shore-Lark, Alauda alpestris,	159
138.	Hind claw of Shore-Lark,	160
139.	Head of Sky-Lark, Alauda arvensis,	163
140.	Head of Wood-Lark, Alauda arvensis,	174
141.	Wing of Meadow Pipit, Anthus pratensis,	179
142.	Head of Meadow Pipit,	181
143.	Hind toe of Meadow Pipit,	182
144.	Head of Tree Pipit, Anthus arboreus,	188
145.	Foot of Tree Pipit,	189
146.	Head of Shore Pipit, Anthus aquaticus,	194
147.	Foot of Shore Pipit,	195
148.	Wing of Pied Wagtail, Motacilla Yarrelli,	203
149.	Foot of Budytes Rayi,	207
150.	Head of Blue-headed Quaketail, Budytes flava,	208
151.	Head of Green-headed Quaketail, Budytes Rayi,	212
152.	Head of Motacilla alba,	220
153.	Heads of Pied Wagtail, Motacilla Yarrelli,	225
154.	Foot of Pied Wagtail,	226
155.	Head of Grey-and-Yellow Wagtail, Motacilla Boarula,	235
156.	Foot of Grey-and-Yellow Wagtail,	236
157.	Head of Grey-and-Yellow Wagtail,	243
158.	Head of Hedge Chanter, Accentor modularis,	251
159.	Head of Alpine Chanter, Accentor alpinus,	258
160.	Head of Robin Redbreast, Erithacus Rubecula,	263
161.	Head of Whin Bushchat, Fruticicola Rubetra,	273
162.	Wing of Whin Bushchat,	278
163.	Wing of Black-headed Bushchat, Fruticicola Rubicola,	278
164.	Head of Black-headed Bushchat,	279
165.	Wing of White-rumped Stonechat, Saxicola Œnanthe,	288
166.	Head of White-rumped Stonechat,	289
167.	Head of Blue-throated Redstart, Ruticilla Cyanecula,	300
168.	Head of White-fronted Redstart, Ruticilla Phœnicurus,	305
169.	Head of Brake Nightingale, Philomela Luscinia,	321
170.	Head of Black-capped Warbler, Sylvia atricapilla,	339
171.	Head of Garden Warbler, Sylvia hortensis,	345
172.	Head of White-throated Warbler, Sylvia cinerea,	350
173.	Wing of Yellow Woodwren, Phyllopneuste sylvicola,	363
174.	Wing of Willow Woodwren, Phyllopneuste Trochilus,	363
175.	Wing of Chiff-chaff, Phyllopneuste Hippolais,	363
176.	Head of Yellow Woodwren, Phyllopneuste Sylvicola,	364
177.	Head of Provence Furzeling, Melizophilus Provincialis,	383
178.	Head of Sedge Reedling, Calamoherpe phragmitis,	390
179.	Head of Grasshopper Chirper, Sibilatrix Locustella,	399
180.	Head of Gold-crowned Kinglet, Regulus auricapillus,	408
181.	Head of Ox-eye Tit, Parus Fringillago,	425
182.	Head of Blue Tit, Parus cœruleus,	431
183.	Head of Coal Tit, Parus ater,	440
184.	Head of Marsh Tit, Parus palustris,	445
185.	Head of Long-tailed Mufflin, Mecistura longicaudata,	454

ESSENTIAL CHARACTERS OF THE ORDER.

ORDER V. CANTATORES. SONGSTERS.

Bill of moderate length, straight, slender, compressed, tapering, pointed; upper mandible with a moderate basal sinus on each side, filled by the nasal membrane, which is covered by short soft feathers, its edges overlapping, with a notch or sinus (sometimes obsolete) close to the narrow declinate tip. Œsophagus rather narrow, without crop or dilatation; proventriculus oblong, with cylindrical glandules. Stomach roundish, more or less compressed, with strong lateral muscles, a prominent inferior muscle, and dense rugous epithelium. Intestine short and rather wide; cœca reduced to very small cylindrical adnate tubes. Feet of moderate length or rather short, slender; toes compressed, three before, moderately spreading; one behind in the same plane stronger and about equal in length to the two lateral, which are much exceeded by the third, the latter united at the base to the fourth; claws rather long, arched, much compressed, acute. Wings of moderate length, rather pointed, with the first quill extremely short or obsolete. *Pl. XIII.*

The digestive organs of the Cantatores differ from those of the Deglubitores chiefly in the œsophagus, which has no crop or dilatation, and in the stomach, which is generally less muscular than in them, but more so than in the Vagatores. These three groups however are very intimately allied, and pass into

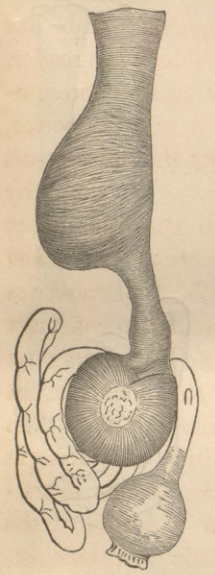
each other by imperceptible gradations, their external parts as well as their internal organs being formed on the same plan. The short strong conical bill, sharp-edged, pointed, and formed for shelling or husking seeds, at once distinguishes the Deglubitores; but the bill of the Vagatores, although always stronger than that of the Cantatores, is not very dissimilar.

The general structure of the digestive organs of Birds has been, it is hoped, rendered sufficiently intelligible to the reader, to enable him to perceive that upon the modifications presented by them may be founded an arrangement of the species, genera, and families, more natural than any that can result from the comparison of the external parts only. It is not by any means assumed by the author that such an arrangement has been elicited by him; for a more intimate and extended acquaintance with the organization of the birds of all countries than he possesses is necessary to render an attempt to construct a natural system successful. In the mean time he has not only continued his observations on the birds of this country, but has examined the digestive and respiratory organs of more than two hundred species from North America, which were brought him in spirits by Mr Audubon. The results of this examination are recorded in the fourth and fifth volumes of the Ornithological Biography of that enthusiastic ornithologist, and, with the aid of the numerous sketches by which they are illustrated, will enable any one desirous of obtaining a general idea of the subject, to judge how far the forms, proportions, and modifications of the organs in question may be useful in indicating the affinities of the species.

In the first volume of the present work, four very distinctly defined varieties of the intestinal canal, including under that title the entire alimentary tube, were exhibited as peculiar to the four groups or orders of birds there described; two other forms were also presented in the plates, and a seventh is produced in the first part of this volume. As the subject appears to be of great importance, and as I am desirous of throwing as much light upon it as my opportunities and faculties enable me to do, I shall here present a series of those forms which seem to be most illustrative.

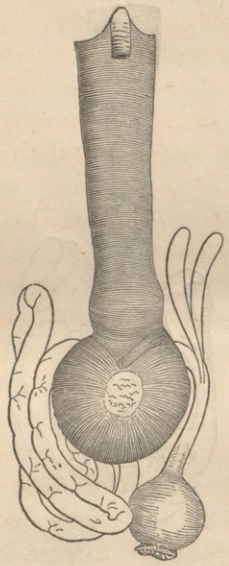
In many birds, the stomach approaches in structure to that of the carnivorous Mammalia, inasmuch as its muscular coat is very thin, and not disposed into distinct portions or muscles.

FIG. 96.



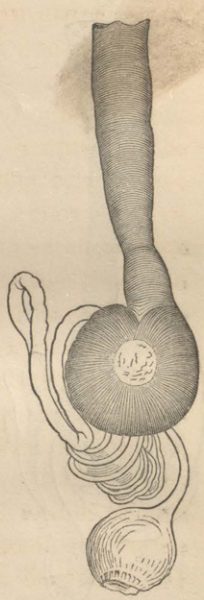
HAWK.

FIG. 97.



OWL.

FIG. 98.

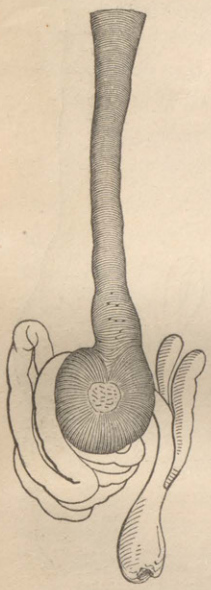


KINGSFISHER.

Thus, in the Falconine Birds, Fig. 96, Owls, Fig. 97, and Kingsfishers, Fig. 98, that organ is very large, roundish, scarcely compressed, with its muscular coat composed of fasciculi of muscular fibres arranged in a single series, and having their two extremities blended with, or attached to, two thin roundish tendinous spaces. Beneath or within this layer is another, equally thin, of condensed cellular tissue; and the inner coat is thin, soft, and smooth, or slightly villous. In all these birds, the œsophagus is very wide; but it differs in form, having in the Hawks, Fig. 96, an enlargement or crop, lying on the right side of the neck; while in the Owls, Fig. 97, it is of nearly uniform width throughout; and in the Kingsfishers,

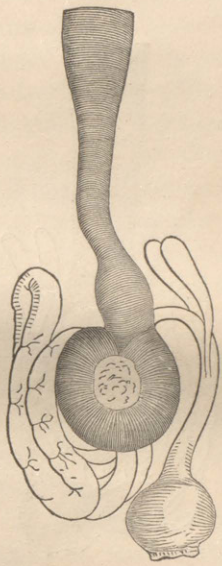
Fig. 98, somewhat funnel-shaped. The intestine of the Hawks and Owls is generally rather short and of moderate width ; but in the Kingsfishers, very long and excessively attenuated. In

FIG. 99.



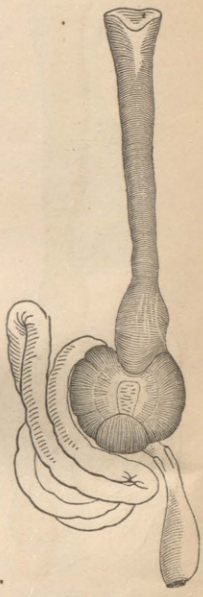
CUCKOO.

FIG. 100.



GOATSUCKER.

FIG. 101.



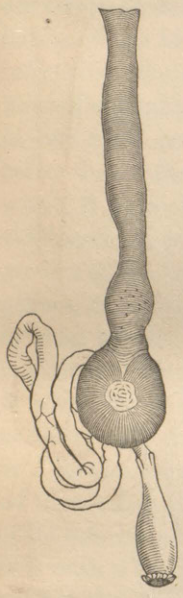
JAY.

the Hawks, the cœca are reduced to the minimum size ; in the Owls they are very large, oblong, and narrowed at the base ; while in the Kingsfishers they are entirely wanting.

In the Cuckoos, Fig. 99, the œsophagus is somewhat funnel-shaped, as in the Kingsfishers, and still more so in the Goatsuckers, Fig. 100. In these birds the stomach however is considerably more muscular, especially in the latter, and its inner coat is a distinct cuticular lining, often soft in the Cuckoos, but in the Goatsuckers dense or horny and longitudinally rugous. In both families the intestine is short and wide ; in both the cœca are large, as in the Owls ; and the cloaca globular. In the Jays, Fig. 101, and in the Crows and Starlings,

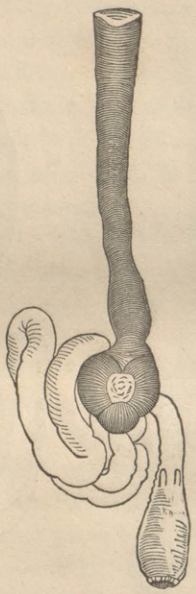
the œsophagus, although funnel-shaped is narrow; the stomach muscular, its external fibres being arranged into several series, and forming three muscles, two lateral, and an inferior,

FIG. 102.



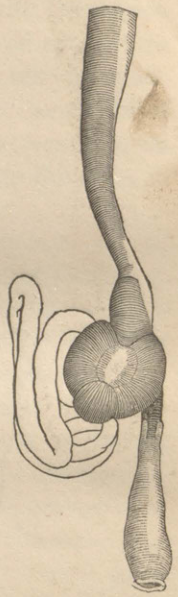
SHRIKE.

FIG. 103.



THRUSH.

FIG. 104.



NUTHATCH.

which however are not very distinct; the middle coat is dense, as in the Cuckoos and Goatsuckers, and the inner is a decided horny epithelium, longitudinally plaited. The intestine is rather long and of moderate width; the cœca very small, and the cloaca oblong or globular.

In the Shrikes, Fig. 102, the œsophagus has no decided dilatation; the stomach is roundish or elliptical; its muscular coat rather thin; its epithelium dense, and rugous; the intestine rather short and of moderate width; the cœca very small; the cloaca oblong or globular. In the Thrushes, Fig. 103, the parts are similar, but the stomach is more muscular, its fibres distinguished into lateral and inferior muscles. In the Nuthatches, Fig. 104, the stomach is similar to that of the

Shrikes, and the parts in general do not differ materially from those of the Thrushes and Warblers.

In the Finches, Buntings, Icteri, and Tanagers, Fig. 105,

Fig. 105.



Finch.

Fig. 106.



Chatterer.

these organs differ from those of the Thrushes, Warblers, Wagtails, Sylvicolæ, and Wrens, chiefly in having the œsophagus dilated about the middle into a kind of crop lying always on the left side; the stomach, on account of the increased thickness of the muscular coat, is often broader than long, its muscles are distinct, its epithelium dense, rugous, and sometimes furnished with two opposite grinding surfaces; the intestine is of moderate length, and width; the cœca very small. In the Chatterers, Fig. 106, which are eaters chiefly of pulpy fruits, of which the seeds pass through the intestines untouched, the œsophagus is much widened about the middle; but the stomach very small, and moderately muscular; while the intestine is short and of enormous width.

These examples, with those adduced in the first volume, will suffice to shew that great variations exist in the digestive organs of birds, as well as in their external parts. Having now examined those of more than four hundred species, I feel qualified to say that in many cases the variations of structure are rendered intelligible by connecting them with the known habits of the birds, and that these organs are well adapted for indicating affinities. Indeed, in most cases, one who has made himself acquainted with their form and structure, as exhibited in our most common birds, will be able with certainty, on being shewn the interior of a bird, to announce the order to which it physiologically belongs.

Objections preferred against the use of anatomy, on the ground of its being unnecessary for distinguishing species or genera, or of its requiring more study than would be agreeable to most people, are destroyed by the consideration of its utility in characterizing families and other more comprehensive groups. It is moreover absolutely childish to talk of external characters as being sufficient indications of the nature of objects. A church, or a theatre, or a warehouse, or a museum, may be distinguished from other buildings by its exterior; but the construction of its interior alone is what gives it its essential character. So is it with a quadruped or a bird, of which the external parts are but the envelopes of the organs, or appendages to them, as essential however to the completion of the organization as the most central parts. My dissections not being made for the purpose of upholding a preconceived theory, or establishing an arrangement founded on another basis, I may find it necessary, in consequence of the gradual acquisition of knowledge, to alter or modify the disposition or even the constitution of the groups which I have in the Introduction to the first volume proposed for the Birds of Britain. Should this be the case, it is hoped the reader will not consider me inconsistent, but allow me to apply the same criticism to my own schemes that I would employ in estimating those of another. Hitherto however, the five groups that have been described, namely the Rasores, Gemitores, Deglubitores, and Cantatores, seem to be perfectly natural, with this exception, that the two latter are less distinct from each other than any of the rest.

But although the digestive organs are thus obviously of the greatest importance to the ornithologist, the others must not be neglected; and, although I am unwilling to impose more labour upon my readers than is necessary, I think it time to introduce to their notice the apparatus by which respiration is performed, and the organs which are subservient to the production of those varied sounds by which birds express their desires, antipathies, and pleasures. No place can be better suited for this purpose than the commencement of a volume containing the Song Birds, nor any means more efficient than those employed in the following Lesson, the results of which may form a basis for more extended observations.

PRACTICAL ORNITHOLOGY.

FIFTH LESSON.

SUBURBAN EXCURSION. NOTES ON BIRDS AND OTHER BIPEDS. VITAL FUNCTIONS OF THE FORMER. ORGANS OF RESPIRATION AND VOICE. LUNGS. AIR-CELLS DISTRIBUTED THROUGH THE BODY. CHANGES OPERATED ON THE BLOOD BY RESPIRATION. TRACHEA AND BRONCHI. LUNGS. RESPIRATORY AND VOCAL ORGANS OF THE ROOK AND BLACKBIRD DESCRIBED IN DETAIL: LARYNX AND ITS MUSCLES; SYRINX, ITS STRUCTURE AND MUSCLES. TRACHEA OF THE BROWN LINNET, BROWN PTARMIGAN, WOOD PIGEON, AND PARROTS. TUBE OF THE TRACHEA, ITS RINGS, AND THE MECHANISM BY WHICH THEY ARE MADE TO SLIP BEHIND EACH OTHER.

To the practical ornithologist all seasons are welcome. Even "the dreary month of November" brings gladness, for it increases his capacity for labour, and renders protracted vigils less injurious to health. Besides, the birds which in summer were dispersed over the country, and hidden among woods and thickets, now approach the dwellings of men, and are easily traced among the leafless twigs. Over the fields too, and upon the estuaries and rivers, are scattered many species which have been driven southward by the severity of the weather, and which can be obtained only at this season. Now is the time for dissection, without which our practical ornithology would fail to make us acquainted with the harmonies of nature.

The beams of the morning sun, unable to penetrate the thick mist that is spread over the ocean, merely tinge the eastern sky with dim red; the ground is hardened by the frost, and the grass crusted with delicate crystals of feathery snow. Most of the Blackbirds and Thrushes are in the gardens, whither we cannot follow them; but many will be found under the hedges, especially in the neighbourhood of farm-houses and villages. There has been little hard weather as yet, and they are fat and full of sap, for they have feasted luxuriously on the snails which they have jerked from their winter-quarters in the walls and hedge-banks.

There stands Robin on the cope of the stone-wall, his dark humid eye glistening as he surveys the ground beneath, intent on the tiny heaps raised by the earthworms. Fear not, little fellow! no murderous tube shall be pointed to thy small frame, for thou art the friend of man. Even the prowling school-boy, armed though he be with an old pistol, will never dream of harming thee. The modest unobtrusive Hedge-Sparrow too, may flit along the fence unscathed. As for the noisy Sparrows, the pensive Buntings, and all of their tribe, we have already satisfied ourselves with observing and describing them. Here are some tall willows, whose slender twigs shoot high into the air. About a dozen small birds are dispersed among them, creeping and clinging in all sorts of postures, busily engaged in searching for food, and now and then emitting their feeble cheeping cry, changed at intervals for a kind of chiding chirr. They are Tits, but whether the blue or the black we cannot at this distance determine by sight, although the notes are certainly those of the former. Now, what are they searching out on those smooth branches and slim twigs? They are perhaps picking the buds, or seeking for minute insects. When you are in doubt respecting any thing in natural history, never indulge in conjecture, for it is worth nothing, but satisfy yourself by observation; and, as in this case, the only certain method of succeeding is to shoot one or two, do so, and let us open their stomachs. The contents of this very small gizzard, not much larger, you perceive, than the heart, are some slender, white worms, or larvæ, having a reddish head, and a quantity of what seems to be vegetable fibres, but which is in reality skins of these same larvæ.

In that tall unpruned hedge, with its bank sloping irregularly towards the ditch, one may often meet with Blackbirds and Thrushes, especially the former. Hark to the loud "chink, chink," and hurried chiding notes, which announce the presence of one. There it glides among the bushes, and flies down the other side. Here is the snail, *Helix aspersa*, which it has partially broken, and there a heap of others, from which it has extracted the animal, after breaking the case on that stone. Someway off is a Thrush in the very act. In these

meadows are no Fieldfares or Redwings at present, the frost not having been intense enough, or sufficiently continued, to drive them here in search of food. Many haws still hang on the branches, and yonder are two rowan trees whose twigs droop with yet unfaded and untouched clusters of scarlet berries. As to the heps of the dog-rose, so plentiful on the bank, birds eat them only when they can get little or nothing besides. But here are some Blackbirds, and if we search for an hour or two along the hedges, we may obtain enough for our purpose. Many Rooks, too, are in the cornyard and on the highway; but of them a single specimen will suffice.

It is only by proceeding in this manner, carefully observing the habits and haunts of birds, that one can become usefully acquainted with them. It is obviously impossible, however, for an individual to examine all the species of a country so closely as to become personally conversant with every particular of either their manners or structure. Even of this beautiful male Blackbird which we have just procured, I cannot now describe all that is interesting in the organization; but, as I have promised to present an account of its vocal and respiratory organs, which may be considered as a continuation of the remarks on the structure of birds offered in the first volume, we shall inspect them on our return, and compare them with those of a variety of other species.

But, Master mine, some folks say there is no use in all this wandering and talking. A would-be critic in a magazine now extinct, conscientiously warns his subscribers of the folly of buying your book, alleging that the writing appears to him an affected attempt to imitate Isaak Walton and Audubon. These excursions of ours he dislikes "in toto," body and soul, or, as he expresses it, "substance and spirit."

Good Pupil, be assured of this:—If ever you do an honourable deed, some one will find it reasonable to censure it. If you write a book, he who has penned a worse on the same subject, will make it his duty to decry it. Let him alone. Our walks are agreeable to ourselves, and useful to others, our conversation is not unworthy of disciples of Linnæus, nor is our mode of observing nature less efficient than that adopted

by our neighbours. As to good old Isaak, were we to imitate any one, we could not choose a more pious or pleasant pattern; and if my familiar and beloved friend, the American Ornithologist, find any thing, in fact, style, or manner, in my book, that belongs to him, he is alive, and can speak for himself. Long before I saw any of the admired productions of his pen or pencil, I wrote much as I write now; and when he accuses me of plagiarism, I will endeavour to convince him of his error. That time, however, will never come. I understand all this perfectly, and so do others.

Don't mind it: I'll thrash the critic myself, should he be either a quinarian or a moss-trooper, whether of the English or Scotch side of the border.

You see that large old water-rat on the bank! The fellow has no business to obtrude himself on us. He obliges us to make a digression, to look at him, talk about him, perhaps shoot him, or miss him; and some straight-forward people are sworn enemies to "incidental remarks and digressions liberally dispersed:" they describe birds as if they were stuck on a perch ready stuffed. Yet, strange to say, they are garrulously digressive in the matter of circles of affinity, with which, like the hoops of a tar-barrel, they gird their crazy systems, the leakings of which, with some goose-feathers, might be economically employed in the manufacture of new species.

Were I to believe the critics, I should to-day fancy myself "a genius equal to the majesty of nature," to-morrow a mere painstaking, prosing mortal, like one who, ambitious of authorship, not only draws birds, but engraves them, or at least scratches them on copper himself, and by a pretty free use of his wife's scissors ekes out the scanty stock of his own observations, and produces a book worthy of—being praised by his friends. But I believe nothing without proof; and, although the facts which I have related no man dares to contradict, I desire not even you to adopt my opinions, but to examine and compare for yourself. I have fought my way hitherto single-handed; have many times aided friends who would not move a finger in public to assist me, because they were not quite sure of obtaining the approbation of the world, and have often spared those who

were at my mercy. Favour from mere Ornithologists I neither want nor expect. My aim is to instruct and amuse the public, to impart to those unacquainted with it some knowledge of my favourite subject, to exercise my faculties, and to describe nature in her varying aspects. Perhaps there is no need of all this egotism; but I have done. There is one God over all. In him I trust, for without his permission, not a hair shall fall from my head, and under his guidance I shall run my appointed race, and rest from my labours. How happy shall I be to find all my most bitter foes in that paradise which I hope to inherit!

Pray don't talk so loud. The people stare at us, just as they stared at your friend Mr Weir the other day, when, having landed at the Canal Basin, he carried along the streets that great piece of fir-tree which contains the nest of the Marsh Titmouse. "The miserly old fellow!" said one, "he looks like a gentleman, and yet is carrying home a log for firewood."

I remember. Mr Weir is an enthusiast, a lover of nature, and, although a Conservative and a trapper of birds, a Christian and a scholar. I forgot him when I boasted of having fought my way with my own claymore. You shall see presently how efficient his aid has been. Other friends too, still dearer, I overlooked, especially him who now, in some Canadian wilderness is making room for himself and his family, beset perhaps with murderous rebels and renegades, my best and most beloved friend William Craigie; and him too, of sultry Louisiana, the wanderer of the wild woods, the warm-hearted and generous Audubon; and many more, some of whom I shall have occasion to mention, but above all, one who will presently welcome us, for here, at No. 1, Wharton Place, we end our digression for the present.

Well! here we are, two Closet Naturalists, seated by a deal table, and having before us, instead of a liberal supply of books and preserved skins, two Blackbirds, a Rook, and several Linnets, which we have ourselves procured; a Wood Pigeon and a Red Grouse, which we have obtained in the market; and a basketful of bodies just arrived from Mr Carfrae's. Let us remember that the component parts of a bird, as of other animals, are numerous, and varied in form and texture, but capable of

being disposed ideally so as to constitute several sets or systems. One series of organs has relation to the existence and enjoyments of the individual, another has reference to the continuation of the species. A perfect or full-grown animal, a Rook, for example, requires to introduce into its interior certain substances which are to be converted into materials capable of making up for the loss daily and hourly sustained by the necessary expenditure of its fluids. These substances, whether animal or vegetable, are converted into a fluid, which is the source of nutrition to all the organs, and possesses the chemical properties of the various parts with which it is finally to be incorporated. The change thus effected upon the substances introduced into the body is termed Assimilation, it being in fact a conversion into like matter. The bird is furnished with wings to carry it abroad in search of food, with feet to enable it to walk, or leap, or stand, or swim, while procuring it, with a bill with which to lay hold of it, a gullet to convey it into its interior, a stomach to pound and digest it, and an intestinal canal, in which it is exposed to the absorbents, and by which the refuse is thrown out. The nutritious part of the food having been conveyed by the thoracic duct into one of the large veins, is carried into the heart, where it is more intimately mixed with the blood, and whence it is propelled along with it to be purified in the lungs, into which air is received from without, and brought into contact with the blood contained in vessels ramifying on their cells. The digestion of the crude food and the absorption of its nutritious parts, constitute the process of Assimilation; the distribution of the nutritious fluid to all parts where it is required is termed Circulation; and the continual purification of the circulating fluid by the action of the atmosphere brought into contact with it, is effected by Respiration; while the application of this fluid to its various uses in the different parts is termed Secretion.

What we have at present to attend to is the Function of *Respiration*, of which the organs are the lungs, two spongy bodies situated within the thorax. The air is admitted to them through a long flexible elastic pipe, which opens into the mouth, and communicates with the nostrils, so that a passage

is afforded when the mouth is shut, as well as when it is open. The lungs resemble in some respects a pair of bellows, inasmuch as they alternately receive and give exit to the atmospheric air. But they do not possess this power of themselves; they are merely expansile and compressible bags, which, on being widened, are filled with the air, which rushes in by the pressure of the atmosphere, and on being condensed, are emptied by the pressure of a muscular apparatus adapted for that purpose. In the Mammalia, a muscular expansion, named the diaphragm, which separates the cavity of the thorax, containing the lungs and heart, from the cavity of the abdomen, containing the stomach, intestine, liver, and other organs, is a principal agent in respiration, by its alternate contraction and relaxation enlarging or diminishing the thoracic cavity, the walls of which are always in contact with those of the lungs. But besides the diaphragm, the abdominal and costal muscles also operate in producing these effects. In Birds, however, there is no diaphragm, properly so called, although it exists in many species in an imperfect state; and therefore the alternate expansion and contraction of the thorax and abdomen, which form but one cavity, are effected by the muscles attached to the ribs, sternum, and pelvis. The lungs are comparatively small, and not so expansile as in quadrupeds, but they have on their surface apertures communicating with large cells in the interior of the thorax and abdomen, and with others in the neck, and even with the cavities of many of the bones. Thus by inspiration, not only are the lungs filled with air, but also the cells disposed in various parts of the body; and it is for this reason that in birds respiration is said to be double.

The lungs are seen, on opening a bird, to be of a very bright red colour, approaching to light vermilion, and of a spongy texture. They are two in number, of a flattened oblong form, destitute of lobes, extending from the second to the last dorsal vertebra, crossed obliquely by the œsophagus beneath, and in contact with the kidneys behind. They are not suspended freely, as in the Mammalia, being bound down by a fascia in front, and sunk as it were into deep cavities above, between the dorsal portions of the ribs, and in a large hollow on each

side of the spine. This fascia, which is analogous to the diaphragm of the Mammalia, generally has on each side three muscular slips attached to three of the hinder ribs. The action of these muscles, being to render the fascia tense, must dilate the lungs and thus be subservient to inspiration, although the extent of the vacuity formed by them is slight compared with that produced by a regular diaphragm. The lungs themselves are not, properly speaking, invested by the pleura, but are covered by a very delicate membrane, which becoming cellular above, attaches their whole upper surface to the parietes of the thorax. The bronchi, or divisions of the windpipe enter upon their anterior surface, and at length divide into several branches, which communicate by openings on their upper or posterior surface with the air-cells of the lungs, and terminate by wide apertures in the large cells or receptacles of air distributed in the thorax and abdomen. The pulmonary artery, which carries the venous or dark blood to the lungs, to be purified, divides immediately after its commencement, into two branches, one going to the right, the other to the left lung, and its ultimate twigs anastomose on the air-cells with those of the pulmonary veins, which in like manner unite into two great branches, and these finally into a single trunk.

The cells, with which the bronchi communicate after passing through the lungs, vary in form and number in different birds. One of them, named the interclavicular, extends from the fore part of the lungs to the space between the crura of the furcula, and is generally of very large size. The anterior thoracic contains the bifurcation of the trachea, the bronchi, and the great vessels entering or issuing from the heart. It is traversed by numerous membranous dissepiments, and communicates with the air-cells that extend up the sides of the neck. The lateral thoracic cells occupy the sides of the thorax, and communicate with a series of cells surrounding the heart, and interposed between it and the sternum, as well as with others in the axilla, which are continuous with cellules occupying the sides of the body, part of the wing, and the cavity of the humeral bone. Two large cells, which have been named the hepatic, extend from the lower surface of the

lungs over the lobes of the liver. The two abdominal cells, which are the largest in the body, commence at the lower part of the lungs, above the hepatic cells, and extend to the extremity of the abdomen; they are generally separated by a longitudinal mediastinum, and are frequently divided into numerous cavities. The pelvic cells occupy the posterior part of the pelvis, and with them and the abdominal communicate the inguinal, whence there is a passage into the femoral bone, and which are continuous with others extending along the leg. Besides these there is a general envelope of cells interposed between the skin and the muscles, which is especially apparent in many aquatic birds, and which is capable of being inflated from the lungs. Such is the ordinary distribution of the cells; but it must not be expected to find them always disposed in the regular order in which they have been represented. The accompanying diagram indicates their form and position in the Rook, viewed from beneath. The interclavicular cell is marked *a*; the cellules of the neck, *b b*. The lateral thoracic cells, *c c*, form a series of various sizes; the inferior thoracic, *d*, may be described as a single large cell intersected by filaments extending from the pericardium to the sternum. The two hepatic cells, *e e*, cover the two lobes of the liver, and are undivided. The lateral abdominal cells, which are the largest in the body, are each divided into two great cavities. On the left side, a great cell, *f*, covers the lower part of the lung and a portion of the left side of the stomach, while another, *g*, extends from it and the left hepatic cell, *e*, to near the anus. On the right side the cell *h* is contiguous with the right hepatic cell, and covers a large portion of the intestine, while that marked *i* includes part of the duodenum. The pelvic cells, *j j*, are small, and very numerous.

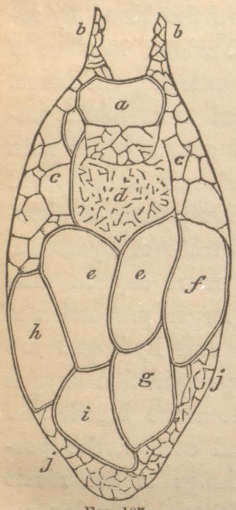


FIG. 107.

It is not necessary that we should enter into a more minute examination of this peculiar disposition of the cellular

2

tissue, which permeates the body of all birds, although more developed, and somewhat differently arranged in certain families. The air admitted by inspiration passes into the lungs, where it produces the usual effect upon the blood there, enters the cells communicating with them, and makes its way nearly to all parts of the body. Although there are of course a regular influx of air into the lungs, and an efflux from them, and the oxygenation of the blood there is manifested by its florid tint; yet it does not appear that a similar alternate motion takes place in the vast series of cells communicating with the lungs, and it is probable that in passing through the latter the air loses the greater part of its alterative power, for the minute vessels ramifying upon the cells distributed through the body do not assume a brighter hue than those remote from them. One obvious effect however is that the air thus introduced into the cells tends to render the body specifically lighter, and this effect is promoted by the expansion which it undergoes from the heat of the animal.

The most obvious change produced upon the blood by respiration is its assumption of a bright red colour, in place of the purplish-red which it presented before entering the lungs. Chemical investigation has further disclosed to us that it imbibes oxygen, and gives out carbonic acid gas, together with water in the state of vapour. Atmospheric air is composed of about twenty parts of oxygen gas, seventy-nine of nitrogen gas, one of carbonic acid gas, and a trace of hydrogen. Arterial blood has been found to contain more oxygen than venous blood, while the latter contains a larger proportion of carbon, and the proportions of nitrogen and hydrogen are nearly the same in both. Now, as during respiration oxygen is extracted from the air, and carbon from the blood, and since carbonic acid consists of oxygen and carbon, the portion of carbonic acid exhaled from the lungs is the result of the combination of the oxygen which disappears during respiration, with the carbon contained in the venous blood, and which has accumulated in it in consequence of the abstraction of its oxygen, hydrogen, and nitrogen, by the processes of secretion and nutrition. But, letting alone the theories that have been proposed on this subject, it is enough for our present pur-

pose to state that respiration is necessary for the purification of the venous blood, and the conversion of the chyle into blood, and that the action of the air upon the blood is also the cause of the internal heat, of which birds have a higher degree than other animals.

The external air is admitted to the lungs and to the cells dispersed over the body, and subsequently expelled from them, by the alternate expansion and contraction of the thoracic and abdominal cavities, effected by the action of the costal, abdominal, and sternal muscles. Its passage takes place through a tube, which commences behind the base of the tongue, opposite to the internal aperture of the nares, extends along the fore-part or side of the neck, enters the thorax between the clavicles, and divides into two branches, of which one goes to each lung, and there subdivides, as has been mentioned. This tube is named the *Windpipe*, *Trachea*, or *Aspera-arteria ;* its two branches are the *Bronchi ;* its commencement, or upper extremity, is the *Upper Larynx*, or the *Larynx ;* and its lower extremity, or the part at which it bifurcates, is the *Lower Larynx*, or the *Syrinx*. Besides acting as a pipe to the lungs, it is also the organ of the voice, the air in passing through it causing its membranes so to vibrate, and being so acted upon by the muscles attached to it, as to give rise to the various cries and notes emitted by birds, although the palate, the tongue, and the mandibles also operate in modifying the sounds thus produced.

At this stage of our lesson, we must have recourse to the objects themselves. Having plucked one of our Blackbirds, leaving only the feathers of the wings and tail, removed the skin from the fore part of the neck, laid open the thorax on the left side by dividing the pectoral muscles and ribs, and cut away the anterior parietes of the abdomen, we observe the following parts. See Plate X, Fig. 1. The wings, feet, and tail, require no particular notice at present. Behind the bill, *a*, are seen a slender muscle, the *stylo-hyoideus*, *b b*, extending from the lower jaw to the basal portion of the hyoid bone ; the two branches of that bone, *c c*, enveloped by their muscles ; and its slender medial or uro-hyal process, *d*. The *œsophagus*, *e*, funnel-shaped at first, then tubular, and without dilatation or

crop, passes over to the right side of the neck, along which it proceeds until it enters the thorax, when it passes to the left side, dilates into the *proventriculus*, *f*, and joins the *stomach*, *g*, which lies on the left side, and is of a roundish form, being distended with food. The *duodenum*, *h*, *i*, *j*, commences the intestinal tube, which ends at the anus, *k*. The left pectoral muscle, *l*, has been cut through; the sternum has been thrust aside, the blood-vessels have been removed, and there are seen, the *heart*, *m*, the right lobe of the *liver*, *n*, the left lobe of the same organ, *o*, together with part of the *lungs*, *p p*. The *trachea*, or windpipe, *q*, *r*, *s*, extends from the mouth, along the fore part of the neck, inclining to the right side, and again turning toward the left; at *t*, over the œsophagus, it divides into the two *bronchi*, *u u*, which enter the lungs, *p p*. A very slender muscle, *v v*, is seen passing down on each side of the trachea, and at *w* is a sort of pad composed of several small muscles. This part, *w*, is the *syrinx*, or *inferior larynx*, while at the other end, *d*, is the *larynx*, or *superior larynx*, which, however, is not well seen in this view. But as the parts here are rather small for an unpractised observer, it will be better, in order to understand the structure of the windpipe in detail, to have recourse to a larger bird, the Rook, in which they can be more easily ascertained.

In Plate XI, Fig. 1 shows the tongue, hyoid bones, trachea, bronchi, and lungs, of the Rook, *Corvus frugilegus*, together with the digestive organs, and part of the kidneys. But, to begin at the beginning, let us turn to Fig. 2, which represents the *hyoid bone*, or the bone of the tongue, which we there see to be composed of several pieces, articulated to each other; and first of a *body*, *a b c*, and two *appendages*, *d e f*, *d e f*. The body is formed of three bones: *a*, the *glosso-hyal*, which in the rook is covered with a horny sheath, represented by *a* in Fig. 1; *b*, the *basi-hyal*, or basis of the hyoid bone; *c*, the *uro-hyal*, which here is almost entirely cartilaginous. Each of the appendages is formed of the *apo-hyal* bone, *d*; the *cerato-hyal*, *e*; and the terminal cartilage, *f*.

Referring now to Fig. 1, we have first the *tongue*, or rather its horny sheath, *a*, which covers the glosso-hyal bone; *b*, the

uro-hyal bone, which passes downwards in front of the larynx, sliding in a sheath; *c c*, the *appendages* of the hyoid bone, covered with the *mylo-hyoideus*, which, arising from the base of the lower jaw, pulls the hyoid bone, and consequently the tongue, forwards; *d d*, the *genio-hyoideus*, which arises from the lower jaw farther back, and is attached to the end of the *apo-hyal* bone, so as to draw the tongue forwards and upwards; the *stylo-hyoideus*, *e e*, arising from the back part of the lower jaw, and inserted into the *basi-hyal* bone, its action being to pull the tongue backwards. Several muscles, however, have been removed, to prevent confusion. Two very slender muscles, *f f*, are seen arising from the base of the hyoid bone and the sides of the larynx, continuing downwards in front of the trachea, being attached to the subcutaneous cellular tissue, and finally inserted into the edge of the furcula at its angle; they are the *cleido-tracheales*, of which the action is to contract the skin of the fore part of the neck, pull the tongue downwards, and assist in shortening the trachea.

The *œsophagus*, *g*, *h*, funnel-shaped at its commencement, is seen passing behind the trachea, and coming out between the bronchi, at *i*, where it is cut off, that the lungs may be seen. The *proventriculus*, *j*; the *stomach*, *k*; the *intestine*, *l m n*.

The *trachea*, *o p q*, is an elastic tube, commencing behind the tongue, *a*, where it opens into the throat, and extending to opposite the first rib, where, at the *syrinx* or inferior larynx, it divides into the two bronchi, *r r*. It is a little flattened, and is not of equal diameter throughout. Its bony rings, sixty in number, are entire, very thin, elastic, narrowed in the middle in front, and connected by elastic membrane. It is lined with a smooth mucous membrane, and is covered externally with layers of cellular tissue. It is extremely flexible, contractile, and extensile, in order to accommodate itself to the contractions, extensions, and highly diversified motions of the neck. The *bronchi*, *r r*, differ from the trachea, in having the rings, about thirteen in number, incomplete, and less flattened, the space left between the extremities of these half rings being occupied by elastic membrane. Let us now examine these parts in detail.

Fig. 3 represents the opening of the windpipe into the throat. It is seen to be behind the tongue, *a*, between the two branches of the hyoid bone, *b b*, and to present a slit, *c*, which is named the *rima glottidis*, or simply the aperture of the windpipe. This slit-like opening may be dilated by the action of muscles to be afterwards described, or firmly closed by other muscles; but in this bird, the Rook, although not in all birds, a triangular vacuity, *d*, is left, which, however, is covered during the act of deglutition by being carried forwards beneath the loose and rugous membrane, *e*, between it and the tongue. Quadrupeds have a cartilaginous flap, the *epiglottis*, which covers the aperture, but in birds there is no such contrivance. The oval pad, *f f*, in which is the aperture described, has its surface composed of mucous membrane, continuous with that of the gullet, and presents several series of small conical papillæ, the use of which may possibly be to defend the glottis during deglutition or regurgitation. Before understanding the manner in which the aperture of the windpipe is opened and closed, we must examine the structure of the solid part of the larynx.

Figs. 4, 5, 6, 7, represent the bones of the larynx: 4 shewing them viewed from before, 5 from behind, 6 from the right side. The form and proportions of these bones vary much in different birds, as we shall afterwards have occasion to see. The largest, marked *a* in all the figures, is placed in front, and is in this bird of a somewhat ovate form. Being analogous to the thyroid cartilage of the human larynx, it is named the *thyroid bone*. To the upper and posterior part of the thyroid bone are attached, one on each side, two slender curved bones, *b b*, which are certainly analogous to the cornua of the thyroid cartilage in man, and therefore may be named the *appendages of the thyroid bone*. Within the nearly complete ring formed by the thyroid bone and its appendages are three other bones, *c*, *d*, *d*; of which the medial and posterior, *c*, is all that remains in birds of the *cricoid cartilage* of the mammalia, which, as its name implies, forms in them a ring of which the anterior part passes below the thyroid cartilage. To this bone, the *cricoid*, are articulated two slender bones, *d d*, named *arytenoid*. At their anterior extremity these bones are attached to the inner surface

of the thyroid bone, *a*, by two slender elastic ligaments, *e e*. The space between the outer edge of the arytenoid bones, *d d*, and the edge of the thyroid bone, *a*, and its appendages, *b b*, is filled up by the mucous membrane internally, and by muscles to be presently described. Along the upper edge of each arytenoid bone, *d d*, is placed a thin cartilage, *f f*. The two first rings of the trachea, *g g*, are incomplete.

It may here be stated that, although in man and the quadrupeds, in which this part is proportionally larger and more complex, the voice with all its varieties as to intensity, is produced by the muscles and membranous cords of the larynx; yet in birds it is produced at the lower extremity of the windpipe, the *syrinx*, Fig. 1, *q*, but is modulated by the larynx so as to be formed into notes. If we take the trachea of a Rook or Blackbird, and blow through its two bronchi, we cause a sound having some resemblance to the cry of the bird; but this experiment does not disclose to us the part in which the sound is produced. Let us therefore cut the trachea across in the middle. By blowing into the upper part we cause no sound, but by blowing into the bronchi, we produce the same sound as before; and if we remove the tracheal and bronchial rings, until nothing is left but the syrinx and two or three of the rings, still the sound, though feebler, is heard. The trachea has been cut across in the living bird, and its anterior half closed, and yet the bird has emitted a cry somewhat similar to its natural one, although it could not fashion it into notes. In the human larynx, the *vocal cords*, which vibrate under the impulse of the air, and thus produce sound, are placed in the larynx; but in birds there are no traces of them there, and this is the reason, or a reason, why in them sound is not produced in the larynx. It is in the vicinity of the lower larynx, or *syrinx*, as I have called it, that the vibrating membrane is placed, as I shall presently shew.

One of the best tracheæ for the purpose of experimenting upon, is that of the Wild Swan, when in a recent state. In February and March 1838, when I had four specimens, I had one removed from its attachments. On introducing the bronchi into my mouth, and blowing hard into them, I produced a dull

sound, which I found to be rendered louder and sharper when the bronchi were contracted, so as to allow their membranes to vibrate. A person present suggesting that the sound was produced in the upper larynx, because it also was in a state of vibration, I had the trachea cut across. On blowing into the bronchi, I caused the same sound as before, but considerably shriller, and could vary its tone from grave to sharp by stretching or contracting the bronchi. The sound was evidently produced by the tremulous motion of the bronchial membranes, and especially of that part situated between the last ring of the trachea and the first bronchial half ring.

The muscles by which the bones of the larynx are moved, so as to open and close the aperture of the glottis, and draw it backwards or forwards, so as to modulate the voice, are, in the Rook, the following:—

1. The larynx is connected with the hyoid bone and tongue by elastic tissue, but it has also a muscular connexion. As is seen in Fig. 8, a pair of thin and slender muscles, the *thyro-hyoidei*, arise in front from the thyroid bone, and are inserted into the basal part of the hyoid bone. Their action is to pull the larynx forwards during deglutition, so as to draw the fore part of the aperture of the glottis, Fig. 3, *d*, into the sheath, *e*, which answers the purpose of the epiglottis in man. If the larynx be fixed, it also draws back the tongue.

2. The other muscles of the larynx are seen on its posterior and superior part. The first may be named the *thyro-arytenoideus* or *apertor glottidis*, Fig. 9. It arises from the appendages of the thyroid bone, from part of the edge of the body of that bone, and passes obliquely forwards and inwards to be inserted into the inner edge of the arytenoid bone, and into the cartilage by which it is margined. Its action is to separate the lips of the aperture of the glottis. This muscle lies immediately under the integument, or mucous membrane and papillæ seen at *f f*, in Fig. 3. The arytenoid bones are prevented from being too widely separated by their anterior ligaments, *e e*, Fig. 5.

3. The aperture of the glottis is closed by a pair of very small muscles, Fig. 10, which arise from the anterior and upper part of the cricoid bone, and are inserted along the inner edges

of the basal half of the arytenoid bones. Their lower or posterior fibres are transverse, and they may be considered as analogous to the *arytenoidei-obliqui* and *transversales* in man.

4. Beneath the *thyro-arytenoidei*, Fig. 9, which open the glottis, are a pair of muscles, the *thyro-cricoidei*, Fig. 11, which arising from the inner edge of the upper and back part of the thyroid bone and its appendage, are inserted into the outer side of the basal half of the arytenoid bones, and into the back part of the cricoid. Their action is to assist in closing the glottis, but more especially to elevate and draw forward the cricoid and arytenoid bones.

5. Besides these may be mentioned a pair of very small oblique muscles, seen in Fig. 11, and more distinctly in Fig. 12, which pass from the edge of the appendages of the thyroid bone to be inserted into the cricoid and arytenoid, and therefore may be named *thyro-cricoidei postici*. Their action is to pull the cricoid and arytenoid bones backward and downward.

Having thus examined the larynx, or upper extremity of the trachea, we continue our inspection, observing that the body of that tube, Fig. 1, *o p q*, is of nearly uniform breadth, until at its lower extremity, *q*, where it is much contracted, and that its rings are generally narrower in the median line than at the sides.

From each side of the larynx arises a thin muscle, *s s*, which soon becomes narrower, and extends along the trachea in its whole length, until it is blended with the muscles situated on the syrinx, *q*. This muscle is generally named the *sterno-trachealis*, because it usually leaves the trachea at its lower part, and passes backward to be inserted into the anterior portion of the costal process of the sternum. In some birds, as the Ducks, there are two such muscles on each side: in other words, the cleido-trachealis, already described, instead of separating from the trachea at its commencement, adheres to it until near the furcula. Here, however, it may with more propriety be considered as terminating at the lower extremity of the trachea; and, as its action is to contract or shorten the tube, it may be named *contractor tracheæ*.

At the bifurcation, *q*, the tube of the trachea contracts, and becomes circular, in place of being flattened. One of its last

rings, Fig. 13, *a a*, is larger than the rest, and has its inferior margin thickened and curved, so as to come to a point before and behind, as at *b*. If we remove the bronchi, Fig. 1, *r r*, from this ring, Fig. 13, *a a b*, and look to it from beneath, we find that it is divided by a narrow bony slip into two semicircular portions, forming the entrances of the bronchi, Fig. 14. Fig. 15 shews the appearance of the bifurcation from beneath, the bronchi being stretched out laterally; the dimidiating slip of the last entire ring of the trachea, *a*; the two last or dimidiate rings of the trachea, *b b*; the lower surface of the bronchi, *c c*, formed of elastic membrane; and lastly, two roundish, subcartilaginous bodies, with the use of which I am not acquainted. We have now to examine the syrinx, or inferior larynx, with reference to its muscular apparatus.

Viewed anteriorly, as in Fig. 1, the *syrinx*, *q*, represents two small pads of muscles, together with two very slender muscular slips; but these muscles are much more distinctly seen in the lateral view, Fig. 16. There are four pairs.

1. The internal anterior muscle of the syrinx, *a*, arises from several of the lower rings of the trachea, and is inserted into the anterior extremity of the first half ring of the trachea. Its action must be to widen the syrinx in its antero-posterior diameter.

2. The external anterior muscle, *b*, arises in the same manner, on the outer side of the last, and is inserted into the anterior extremity of the second or last half ring of the trachea.

3. The posterior muscle, *c*, arises behind the last two, and is inserted into the hind part of the last tracheal half ring.

4. Between the last two is seen a shorter, broader, and thinner muscle, *d*, which arises from a few of the lower rings of the trachea, and is inserted into the whole upper edge of the last tracheal half ring.

These muscles acting conjointly must elevate the last tracheal rings, and elongate the bronchi; acting separately, they must elevate either extremity of the former.

The last muscle, *e*, the *sterno-trachealis*, is a slip, which arises from a ring of the trachea, between the two anterior muscles, passes backwards and downwards, and is inserted into the anterior part of the costal process of the sternum. Its action is

to draw the inferior larynx downwards, or to prevent it from being pulled too far upwards by the action of the contractor tracheæ, *s s*; or to aid the action of that muscle in shortening the trachea. Here it is a distinct muscle, but in many birds it forms a direct continuation of the contractor tracheæ, *s s*.

We have thus traced eleven pairs of muscles belonging to the trachea: five pairs being appropriated to the larynx, two pairs to the tube of the trachea, and four pairs to the syrinx, or inferior larynx. You will find the number stated in books to be much less; but we take our lessons from nature, and regard no other authority. It is by these muscles that the different parts of the air-tube are stretched and relaxed, opened and closed, so as to produce modulated sounds; and all this complex apparatus is necessary to enable a Rook to emit its various cries, which, however, are much more numerous than is generally supposed, and fully as diversified as those of the Blackbird, although it has not the faculty of emitting them in continuance, so as to form what is called a song.

The part which seems to be analogous to the vocal cords in man, is a dense, whitish elastic ligament extended between the extremities of the last half ring of the trachea on each side, at *b b*, Fig. 15, but which will be better seen in another figure.

The lungs, Fig. 1, *t t*, are two oblong, depressed, spongy, but rather dense bodies, situated in the upper part of the thorax, extending from the first to the sixth rib, 1, 6, presenting beneath or towards the sternum a flattish surface, and being above transversely and deeply grooved by the ribs. Inferiorly, they are covered, supported and confined by a membrano-tendinous expansion analogous to the diaphragm in quadrupeds, and into which are inserted some slender muscular slips, *v v v*, coming from the hind ribs. Being thus bound down, they receive little dilatation during inspiration, and their upper or dorsal surface, instead of being free, as in the mammalia, is attached to the pleura costalis by a very delicate cellular tissue. Two of the bronchial apertures communicating with the thoracic cells are seen at *u u*. Behind the lungs are placed the kidneys, on the inferior surface of the anterior lobes of which are seen the testes.

Let us now compare with these organs in the Rook, the corresponding parts in the Blackbird, referring again to Plate X.

The trachea itself, Fig. 2, *a b*, is in no essential respect different from that of the Rook, it being a little flattened, and slightly tapering, its rings complete and about eighty-two in number. The larynx also is similar, and presents the same muscles similarly arranged.

Fig. 3 represents the tongue, *a*, covered with a horny envelope, which is fringed towards the end; the two crura of the hyoid bone with their muscles, *b b*; the elastic ligament, *c*, connecting the larynx with the base of the hyoid bone; behind which are the thyro-hyoid muscles; the aperture of the glottis, *d*, the upper rings of the trachea, *e*; the cleido-thyroid muscles, *f f*; and the contractors of the trachea, *g g*.

Fig. 4 shews the bones of the larynx, namely, the thyroid, with its appendages, the cricoid, and the two arytenoid, together with the thyro-cricoidei postici, and the arytenoidei.

Fig. 5 exhibits the thyro-arytenoideus, which opens the rima glottidis; and Fig. 6, the thyro-cricoidei, which aid in closing it, and bring the parts forwards.

At the bifurcation of the trachea, we find precisely the same arrangement as in the rook. The lower ring is larger, and divided at its lower pointed margin into two passages for the bronchi, as is seen in Figs. 7 and 8. The muscles of this part, viewed anteriorly, are seen in Fig. 2, in which *b b* mark the cleido-thyroid muscles; *c c*, the contractors of the trachea; *d d*, very slender muscular filaments attached to the sternum; *b*, the syrinx, with its muscles; *e e*, the sterno-tracheales; and *f f*, the bronchi. Viewed laterally, Fig. 9, the muscles are seen to be similar in number and arrangement to those of the Rook; namely, the anterior internal muscle, *a*, arising from several of the lower rings of the trachea, and inserted into the anterior extremity of the first half ring; the external anterior muscle, arising in the same manner, on the outer side, and inserted into the anterior extremity of the last half ring of the trachea; the posterior muscle, arising behind the last two, and inserted into the posterior extremity of the last half ring; the intermediate broad muscle, inserted into the upper edge of the

same ring; and lastly, the sterno-trachealis, *e*, here extremely delicate, which passes from the lower part of the trachea to the edge of the sternum. Viewed from behind, the muscles appear as in Fig. 10. The bronchial rings are eighteen.

Such, then, is the apparatus by which the voice of the Cantatores is attuned. The air contained in the lungs and air-cells, passing through the bronchi, causes the vocal membranes at their anterior extremity to vibrate, and thus produces sound, which is rendered grave or acute by the relaxation or tension of the parts; and the stream of air thus thrown into vibrations is divided, narrowed, or allowed to pass free, by the muscles of the larynx. The modifications of these organs presented by the different species of this order, are slight, and in all those which I have examined, I have found the same parts, and the same number of muscles. The peculiar songs of different species must depend upon circumstances beyond our cognition, for surely no one could imagine that the Raven, the Hooded Crow, and the Rook, require as complex an apparatus to produce their unmusical cries, as that which the Blackbird, the Song Thrush, the Nightingale, and the Linnet employ in modulating their voice, so as to give rise to those melodies which are so delightful to us; and yet the knife, the needle, and the lens do not enable us to detect any superiority in the Warbler over the Crow.

Having examined the vocal organs of a species of the Cantatores, and those of a species of the Vagatores, we may now advert to the respiratory and vocal apparatus of the Deglubitores. Taking a Common Linnet as a representative of the latter, we observe that the parts in question present no very remarkable differences. As is seen in Plate XI, Fig. 17, the trachea is similar to that of the Blackbird, being a little flattened, and tapering, with the muscles of the larynx and syrinx essentially the same. Instead of being merely lateral, however, the contractor tracheæ is spread over its whole surface. The rings of the trachea are about sixty, and the half rings of the bronchi about twelve.

The vocal organs of the Deglubitores, Vagatores, and Cantatores, are thus essentially similar, and occupy the highest place

in the order of complexity. Let us now see in what respects they agree with, or differ from, those of the other orders which I have described, namely, the Gemitores and Rasores.

In Plate XII, Fig. 1 represents the trachea of the Wood Pigeon, *Columba Palumbus*. In opening the skin of the throat, we observe that the windpipe, in place of passing over to the right side and returning, as in the Crows, Starlings, Thrushes, and other Vagatores and Cantatores, keeps on the left side, and indeed so far back that when the neck is bent, part of it becomes higher than the vertebræ. And here I may venture upon a general statement, which, however, I shall not dignify by giving it the name of a law:—In all birds of which the œsophagus is funnel-shaped or tubular, the trachea passes along with it to the right side; in those in which there is a small dimidiate crop, or slight dilatation, as the Deglubitores, it passes also to the right; and in all those which have a large crop, as the Gemitores, Rasores, and Diurnal Raptores, it keeps to the left side. On exposing the trachea of our Pigeon, we find that it is of nearly uniform diameter, but much flattened, the anterior part of its rings much broader and firmer than the posterior part, so that the latter readily yields to the finger, and when dry falls inwards with a concavity. The number of rings in this species is an hundred and ten, and that of the bronchial half rings ten.

Plate XII, Fig. 1, represents the tongue, *a*; the processes of the hyoid bone, *b b*; the trachea viewed from before, *c d e*; the two thyro-hyoidei muscles, *f*; the lateral contractors *g g*, here terminated by the sterno-tracheales, *g g*; the single pair of muscles of the syrinx, *h h*; the last ring of the trachea, *e*; and the two bronchi, *i i*. It is to be remarked that here the muscular slip *g*, which connects the trachea with the costal process of the sternum on each side, is a direct continuation of the contractor muscle, which was not the case in the Rook, Blackbird, and Linnet; that the muscles of the syrinx are reduced to a single pair—and there are many birds in which there are none at all, as we shall presently see; that the last ring of the trachea, *e*, is very curiously modified, for in place of being a solid bone, it is formed of an upper curved hoop, a lower circular ring, and two connecting semi-cartilaginous

processes, one in front, the other behind, the intervening space being filled by an elastic membrane, which when relaxed becomes concave externally, but which may be rendered tense by the action of the muscles, *h h*, inserted into it.

Fig. 2 is a lateral view of the syrinx, shewing the lower part of the sterno-trachealis muscle, *a*; the tensor of the membrane of the syrinx, *b*; that membrane itself, *c*; with its upper and lower rings. This lower ring of the trachea, Fig. 1, *e*, has no division, like the corresponding part in the Rook and Blackbird, Pl. X, Fig. 7, and Pl. XI, Fig. 14; but the membranes of the bronchi merely meet there, and are united by a dense layer, the ring, Fig. 3, remaining entire. On blowing into the bronchi, we find that a tremulous murmuring sound is produced, which we may fancy to resemble that of the bird, although we are unable to modulate it.

In Fig. 4 are seen, the upper surface of the tongue, *a*; the hyoid bones, *b b*; the aperture of the glottis, with its pad, *c*; the first rings of the trachea, *d*; and part of the contractor muscles, *e e*.

Fig. 5 shows the bones of the larynx: namely, the thyroid, *a*; the appendages of the thyroid, *b b*; the cricoid, *c*; and the arytenoid, *d*. It is here to be observed that the appendages of the thyroid, which by many anatomists have been considered as portions of the cricoid bone, are actually *continuous with the body of the thyroid*, although reduced to a cartilaginous state.

Figs. 6 and 7 shew the difference in the thickness of the same rings, Fig. 6 being a posterior, Fig. 7 an anterior view.

The muscles of the larynx are reduced to two, namely, the thyro-arytenoideus, and the thyro-cricoideus, on each side.

The differences here presented are important and very obvious, and would induce us to suppose that the more simple the voice, the less complex, as to its muscular apparatus at least, the lower larynx. But, before we come to general laws, we must extend our observation, and therefore, considering that some ornithologists would force upon us the Pigeons as part of the Rasores, let us examine the windpipe of a Gallinaceous bird, and see whether or not it differs as much from that of a Cooer, as many of the other organs of these two most distinct orders do.

Plate XII, Fig. 8, represents the trachea of a Brown Ptarmigan, *Lagopus scoticus*. It tapers considerably toward the lower extremity, and is composed of about seventy rings. Like that of the Pigeons, it keeps on the left side of the neck, as is in fact the case in all birds which have the crop large, but in this, as in the other representations, it is straightened. The thyroid, cricoid, and arytenoid cartilages present nothing remarkable in their form or arrangement. The rings of the trachea, however, are extremely thin, broader in front than at the sides, and having a transverse vacuity there. The lowest complete ring is very similar to that of the Wood Pigeon, being formed of an upper curved ring, a lower ring also curved, and an anterior and a posterior erect bony slip connecting the rings, the interval between which is filled by membrane. As in the Pigeon, there is no transverse dissepiment in this ring, beyond which are two half rings belonging to the trachea. The bronchi, *g g*, are very wide, and composed of about fifteen half rings. The muscles of the upper larynx are only three, the thyro-hyoideus, the thyro-arytenoideus which opens the glottis, and the crico-arytenoideus which closes it. The lateral muscles of the trachea are two, the cleido-trachealis, *d d*; and the sterno-trachealis, *e e*; but the syrinx or lower larynx is totally destitute of muscles, and in this respect differs from that of any bird which we have yet examined. In other gallinaceous birds, the trachea is less flattened or perfectly tubular, with strong bony rings; but in all, the lower larynx is destitute of muscles. The lungs, *h h*, are seen covered by the strong fibro-membranous expansion, to which are attached on each side three muscular slips, *i*, *j*, *k*, arising from the ribs.

Thus, it appears that in reference to the complexity of its muscular apparatus, the trachea of the Cantatores, Vagatores, and Deglubitores, occupies the highest place, there being five pairs of muscles appropriate to the larynx, two pairs to the tube of the trachea, and four pairs to the lower larynx. The Gemitores or Pigeons have three pairs for the larynx, one pair for the tube of the trachea, and a single pair for the lower larynx. The Rasores have three pairs for the larynx, and two pairs for the tube of the trachea, but none for the lower larynx.

In these latter birds, therefore, the organs of voice are of the most simple construction. Other tribes of birds correspond with these several gradations, as we shall subsequently have occasion to observe; and intermediate stations are occupied by others. For example, the trachea of the Parrots differs from all those which we have examined in having two pairs of muscles to the lower larynx.

Plate XII, Fig. 9, represents the windpipe of a Parrot. The glosso-hyal bone is marked *a*; the basi-hyal, *b*; the uro-hyal, *c*; the apo-hyals, *d d*; the cerato-hyals, *e e*. The bones of the larynx are the thyroid, *f*; the lateral appendages of the thyroid, *g*; the cricoid, *h*; and the arytenoid, *i*. The trachea, *j k*, is much enlarged at the commencement, and then gradually tapers. It is composed of sixty-five strong rings, of which the upper four are incomplete. The rest are contracted in the middle, before, and behind, so as to overlap each other in a manner to be afterwards described. The inferior larynx, *k*, is extremely compressed in a lateral direction. None of the rings are much enlarged; the last complete ring is curved, but has no dissepiment; and the last ring, which is dimidiate, is strong, and much curved.

Fig. 10 represents this part, viewed laterally. The last entire ring is marked *b*; the dimidiate terminal ring, *c*; the first bronchial ring, *d*; the bronchus, *d e*, of which the number of half rings is twelve.

The muscles of the larynx are only three, namely, the thyro-hyoideus, the thyro-arytenoideus, Fig. 11, and the thyro-cricoideus, Fig. 12. Those of the lower larynx are two. Viewed from before they are represented by Fig. 9, in which *l l* are the sterno-trachealis, which I do not consider as a muscle of the inferior larynx, it being generally a continuation of the contractor muscle; *m m*, the tracheali-bronchiales, which arise from several of the lower rings of the trachea, and are inserted into the first and second bronchial rings; *n n*, a pair of short strong muscles arising from some of the last tracheal rings to be inserted into the last ring of the trachea, which being dimidiate, is moveable, like those of the bronchi. Fig. 13 shews this muscle in the lateral aspect of the trachea; and in Fig. 14 is seen the tracheali-bronchialis, which lies over it.

For the present this must serve as an explanation of the mechanism and functions of the respiratory and vocal organs of birds. An opportunity may occur of resuming the subject. But before concluding this lesson, I cannot with propriety defer explaining a peculiarity in the windpipe of birds which seems to have been overlooked. It has been remarked that the rings in certain species have one side narrower than the other, and this alternately, in the manner represented by the accompanying figure; but although this may be the case in a few species, it is not so in those in which it has been pointed out, for the disposition in question is merely apparent and not real. The true state of such windpipes is this. Owing to the frequent and extensive alternate contractions and elongations of the neck, the trachea requires to have a structure allowing it to undergo corresponding alterations, and this without any great change in its diameter. Solid rings, connected by elastic membranes, might, by the contraction of the latter, approximate so as greatly to diminish the length of the tube; but so great does this diminution occasionally require to be, that to effect it in this manner, the rings would be too slender or too distant to maintain the calibre of the tube in a perfectly pervious state, and therefore a contrivance was necessary by which strength and a great degree of contraction, with a uniform diameter in all cases, might be combined; and this has been effected in the following manner. Fig. 108 represents a portion of the windpipe in a state of relaxation; while Fig. 109 represents a portion in a state of contraction; and Fig. 110 a portion in an intermediate state. In the first state, Fig. 108, the rings, which are equal, or nearly so, stand free, being separated by an intervening space occupied by elastic membrane. In the second case, Fig. 109, the rings appear as if incomplete, or the trachea seems to be formed of alternate lateral half rings, presenting, at their meet-

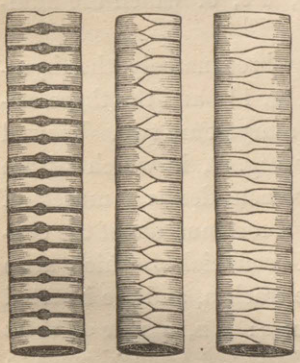


Fig. 108. Fig. 109. Fig. 110.

ing in front and behind, a zigzag line. In the other case, Fig. 110, the rings appear as if complete, but alternately broader on either side; in other words, each ring seems to have one lateral half broad and the other narrow. And it is thus that the rings of the trachea in birds, or at least in many birds, have been usually represented. But let us examine the matter more closely, and rather take a lesson from nature than from books; and for this purpose let us take the trachea of a large bird, a Wild Swan for example.

A portion of the trachea of that bird, one inch in length, when contracted to the utmost, Fig. 111, appears to be composed of alternating half rings; or if less contracted, of entire rings alternately broad and narrow. But the same portion drawn out to its full extent, and then measuring two inches in length, Fig. 112, has a very different appearance, being evidently composed of equal rings, each, however, having a contraction, or two opposite notches, in the middle, in front, as well as behind. Now, if the rings be gradually brought together, we find that one overlaps the other in a peculiar manner, so as to produce the appearance represented by Fig. 111. Fig. 113 represents two rings, the membrane between which has been removed. The ring marked 1, is seen to be narrowed in the middle, and the portion of it to the right is plain or flat, while that to the left has a slight ridge running along its centre. The ring marked 2 is similar, but has the plain portion to the left, and that with the ridge placed to the right. In Fig. 114, these two rings are brought close together, when it is seen that No. 1 has overlapped No. 2 on the right side as far as the ridge, while No. 2 has overlapped No. 1 on the left side to the same extent. No. 1

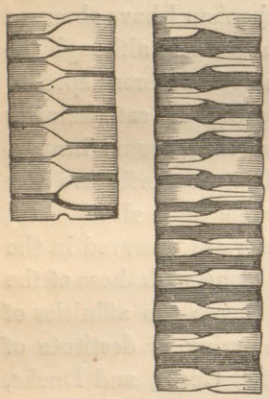


Fig. 111. Fig. 112.

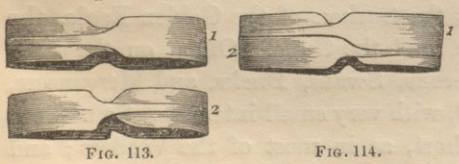


Fig. 113. Fig. 114.

has thus passed within No. 2 on the left side, and over it on the right; and in this manner has been produced the appearance exhibited by Fig. 111. Of course without the contraction or double notch in each ring this effect could not be produced, for it is there that the rings cross each other. Thus then, the trachea in its extreme state of contraction, when it is reduced from one-half to one-third of its greatest length, undergoes but a very slight diminution in its diameter. The elastic membrane passes from the edge of one ring over the next, to be inserted into the edge of the third. The intermediate ring then slips in behind those on each side of it; while its other lateral half slips before those on each side of it. This mechanism I have observed in almost all the tracheæ which I have examined, although the rings vary much in breadth and thickness in different species. Surely while we are pleased with having so satisfactorily traced it, we may be permitted to admire its extreme beauty, and to exclaim with the Psalmist, "How wonderful are thy works, O Lord! in wisdom hast thou made them all!"

Many curious modifications of structure are observed in the trachea, the peculiarities of which tend, along with those of the alimentary canal and other organs, to indicate the affinities of the different groups of birds. Thus the syrinx is destitute of muscles in the Rasores, and in the Swans, Geese, and Ducks, which among the aquatic birds are analogous to the Pheasants and Partridges among the land birds. But the general inferences that may be deduced from these circumstances must be deferred until we have obtained a view of the whole series. I shall therefore conclude with a few remarks.

In some birds the rings of the trachea are very narrow, and their intervals proportionally wide; and sometimes the rings are cartilaginous, or but partially ossified. All these circumstances are observed in the tracheæ of the Golden Eagle, the White-tailed Sea Eagle, and the Gulls. Often, on the other hand, as in Cranes, Herons, Swans, Ducks, and Mergansers, the rings are very broad, with very small intervals. Sometimes the bronchi are very short, as in most of the Waders; and sometimes they are very long, and of great diameter, as in Cormorants and Bitterns. Although generally membranous along

one side, they are complete in the Grebes, in which moreover the rings are ossified. As to the extensibility and contractility of the trachea, I may state that the windpipe of a Golden Eagle, when contracted to the utmost by the overlapping of its rings, measured five inches and a half, but when extended to the utmost, measured nine inches and a half; that of a Curlew was four inches long when contracted, and six inches and three quarters when extended; and that of a Cormorant, in the former case, nine inches and three quarters, and in the latter fifteen inches and a quarter. But as in these cases the bones of the upper larynx and syrinx, which do not slip over each other, are included, a better idea of the extensibility of the trachea is obtained from a fragment of it taken from the middle. Thus, a portion of the trachea of a Rook, one inch long when contracted as much as it can be, measures two inches and three quarters when extended to the utmost; and a portion of that of a Wood Pigeon, one inch long when contracted, may be extended to two inches and a quarter. But the greatest range known to me is exhibited by the dilated portion of the trachea of the Golden-eyed Duck, which may be contracted to a quarter of an inch, and extended to two inches and a quarter. This, however, is effected by a mechanism different from that usually exhibited; for although the rings cross each other in front, in the ordinary manner, they are narrowed behind, and gradually fall within each other upwards.

Finally, I have again to remark that I do not consider the pair of muscles, Pl. X, Fig. 2, *e e*; Pl. XI, Fig. 16, *e*; Pl. XII, Fig. 1, *g g*; which connect the trachea with the sternum, as belonging to the lower larynx, with which they generally have no connexion. They usually form the lower extremity of the contractor-tracheæ or sterno-trachealis, but are sometimes distinct, at least in part, some of their fibres being inserted upon one or two rings of the trachea.

And now, good Pupil, persevering and industrious, I cannot suppose that *you* hold all this to be a digression. Many persons consider everything anatomical, mathematical, or in any way rational, as "dry:" they relish romances, rhymes, caricatures, and frivolities of all sorts. Some weak-headed naturalists

go so far as to tell us that lungs and liver, and bones and muscles, and such trash, have nothing to do with the study of living nature. They even unblushingly call themselves philosophers, and "the higher order of zoologists." Let *us* not think more highly of ourselves than we ought, but simply strive to acquire and impart a knowledge of the works of God. In the Linnæan Society's Transactions, you will find a most instructive account of the windpipes of birds by Mr Yarrell, which, however, I did not look to until I had examined the subject in nature. His description and nomenclature of the parts are different from mine, and therefore you must consider well before you adopt either. Our fifth practical lesson is now ended: when we meet again, we shall talk of hill and dale, thicket and wild wood; traverse in thought the barren heath and the cultivated field; and listen to the songs of the Mavis and Merle, as we bask on the sunny slope of some rocky mountain that overhangs the far-extended and populous valley of the Tay, or to the croaking notes of the Ptarmigan, misnamed "*mutus*," as we penetrate the white mist that envelopes the craggy summit of Ben Ledi.

Order VI. Modulatoriæ.

Suborder I. Volitatrices.

from p. 511. Vol. III.

Suborder II. Cantatrices. Songsters.

~~V. CANTATORES. SONGSTERS.~~

###

The birds to which, considered collectively, ~~I have given~~ the name of *Songsters* are obviously more deserving of that title than any others, their vocal powers being of the highest order, for although some species of ~~*Deglubitores* and *Thremmaphilines*~~ may in this respect rival many of the *Cantatores*, yet not only do the latter in general possess more musical talent than all the other groups together, but several species among them, for example, the Sky Lark, the Wood Lark, the Mocking-bird, the Wood Thrush, the Common Thrush, the Blackbird, the Nightingale, the Blackcap, and the Garden Warbler, excel all competitors in the variety, melody, and compass of their song. ~~It may not therefore be said that they are inaptly named. But a more serious task, that of characterizing them, has to be performed, before the propriety of the proposed arrangement can be made manifest.~~

is here given, other groups rices

~~To begin with their most obvious characters, it may, in the first place, be stated that~~ They are all of small size, some of them being extremely diminutive, while the largest does not exceed a Merlin or a Turtle Dove. ~~They form part of the so-called order *Insessores* of some ornithologists, from which I have already separated the *Deglubitores* or Huskers, having thick conical bills, fitted for shelling seeds or kernels, a small dimidiate crop or œsophageal dilatation, and a highly muscular gizzard, and the *Vagatores* or Wanderers, which have the bill more elongated and compressed, the œsophagus without dila-~~

In the Songsters

tation, and the stomach slightly or moderately muscular, they being in general omnivorous. Species of both these orders exhibit close affinities to species of the present order, which presents the following general characters.

The bill is never longer than the head, nearly straight, slender or moderately stout, compressed, tapering, pointed, sharp-edged; the upper mandible with a notch or sinus, which, however, is in some species obsolete. The tongue is short, or of moderate length, narrow, flat, emarginate, and papillate at the base, thin-edged, with the point slit or lacerated. The œsophagus is narrow, without crop or dilatation; the proventriculus oblong, with a complete belt of roundish or oblong simple glandules. The stomach is roundish, or broadly elliptical, and compressed; its muscular coat thick, and forming two distinct lateral muscles, with an inferior thinner muscle; its cuticular lining dense, tough, and slightly rugous. The intestine is short, and rather wide, the cœca very small, cylindrical, and adnate; the rectum short, wide, with an elliptical dilatation or cloaca. See Plate XIII.

The body is ovate; the neck short; the legs of ordinary length or short; the tarsus much compressed, covered anteriorly with about seven scutella; the toes four, compressed, three anterior, slightly spreading, the first stouter and about the same length as the second and fourth, which are nearly equal, the third much longer, and united at its base with the fourth. The claws are rather long, arched, slender, compressed, tapering to a fine point, that of the hind toe longest. The wings are of moderate length, semi-ovate; the first quill extremely small, sometimes wanting, the third and fourth generally longest. The tail is composed of twelve feathers, but varies in size and form.

The cranium is large, ovate, broad and rounded behind; the orbits are very large, their septum incomplete; the jaws of moderate length, and rather slender; the upper with the nasal vacuity large and elliptical, the lower almost straight, with an oblong vacuity near the condyle. The cervical vertebræ are generally twelve; the dorsal eight; the united lumbar and sacral ten, or the lumbar three and the sacral seven; the

coccygeal or caudal seven. The ribs are eight, very slender, depressed, the first incomplete, and, as well as the last, without the posterior process, which is narrow and rather long. The scapula, *j j*, is linear and slightly decurved; the furcula, *i*, narrow, hyoid, or resembling the letter U, with the curve rounded, and having a roundish or oblong thin plate projecting backwards. The coracoid bones, *h h*, are rather slender, and diverge little. The sternum, *a b f f*, is of moderate length, broad, narrower anteriorly, its posterior margin, *f f*, broad, more or less curved, with two deep notches, *g g*, its lower outline, *a e*, slightly curved, its anterior, *a b*, concave; the median process, *b*, long and broadly furcate; the lateral anterior or costal processes,



Fig. 115.

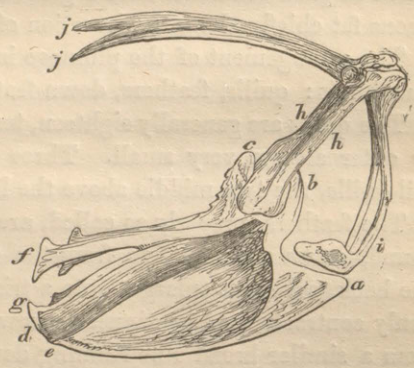


Fig. 116.

c c, large. The humerus is short; the cubital bones a fourth longer; the rest of the same length as the cubitus, consisting of two carpal bones, one large metacarpal, having an oblong incomplete space, a slender pollical, and three digital, two united bones forming the first phalanx. The pelvis is of moderate size; the iliac bones oblong and anteriorly rounded; the pubic linear, slightly recurved, with an oblong open space between them and the rest. The femur is short, the tibia nearly a third longer, with a slender incomplete fibula, extending only one-third down. The tarsal bone is trigonal, and shorter

than the tibia; the hind toe is composed of a distinct metatarsal bone and two phalanges; the second of three, the third of four, the fourth of five phalanges; the extreme phalanges of moderate length, conical, slightly arched, laterally grooved.

The muscular system is moderately developed, the muscles of the wings and legs rather large. The trachea is simple, of nearly uniform diameter; the inferior larynx small and composed of narrow rings; the bronchi of moderate length and width. It lies, along with the œsophagus, on the right side of the neck, has five distinct pairs of laryngeal muscles, two pairs of contractors, a pair of sterno-tracheales, and five pairs of inferior laryngeal muscles. The liver is very large, of two unequal lobes; the gall-bladder globular. The nostrils are small and oblong; the eyes of moderate size; the external aperture of the ear large and transversely elliptical. The skin is very delicate; some species when in good condition have a great accumulation of subcutaneous fat chiefly along the insertion of the feathers.

The arrangement of the plumage is as follows:—There are four kinds: quills, feathers, down-feathers, and hair-feathers.

The quills are generally eighteen, ten being primary, the first or outer always very small. Three pollical quills. Twelve tail-quills, the two middle above the line of the rest.

The feathers, properly so called, are inserted on the head all round, on an elevated line from the occiput to the middle of the back, where it enlarges into a triangular space, then suddenly contracts, and continues narrow to the uropygial gland; from a similar broad line running down from the fore part of the neck, dividing below into two broader bands, each of which runs along the middle portion of the side of the thorax, and over the abdomen to near the vent; from a short band crossing the humerus, a line margining the anterior membrane of the wing, and a line running along the base of the quills; from similar lines under the wings; from a short band across the femur passing halfway to the vent; from the outer part of the tibia sparsely, and from its whole circumference below; and from a small transverse space above and another below the tail. The ears and anus are also margined with a distinct circle; and there is a row of bristle-tipped feathers on each side near the base of the upper mandible.

The down-feathers grow on all the spaces intervening between those covered by the ordinary feathers. They are generally sparse, but denser on the abdomen. The hair-feathers grow sparsely on all the spaces covered by the regular feathers, but not on those covered by the down-feathers, and in many species several project beyond the surface of the plumage on the nape.

The arrangement and texture of the plumage are thus similar to those of the ~~Deglubitores and Vagatores~~; which, moreover, do not differ very essentially in the form and proportions of their skeleton. The Cantatores however are readily distinguished by their slender, straightish, compressed bill, and by the peculiarities of their digestive organs, which are adapted for insect food, although also capable of extracting nourishment from other substances. Their feet being fitted for perching and walking or leaping, are not essentially different from those of the ~~orders~~ just mentioned.

Species ~~of this order~~ occur in all parts of the globe, from the frigid regions bordering on the polar ice to the torrid climes of the equator, although they are more numerous in the warmer zones. Their food consists chiefly of insects, larvæ, worms, and terrestrial or fresh-water mollusca, which they procure by searching among the herbage and foliage, under thickets, by walls, in the fields and pastures, and by brooks and pools. On the ground they generally advance by a succession of short leaps, and although some proceed by an alternate motion of the feet, none walk in the sedate manner of the Crows and other Vagatores. Almost all cling with ease to twigs, and move among the branches and herbage with great agility. Their flight is generally rapid, light, and undulated; but it varies considerably in the different families and genera, being direct and produced by a continued flutter in the Dippers, buoyant and deeply undulated in the Wagtails, with intermediate gradations. In summer they are generally unsocial, in winter gregarious. Very many are migratory, the necessity of moving southward in autumn being obvious in those which are strictly insectivorous. They bask in the sun, flutter among sand or dust, wash occasionally, and drink by sipping. Their nests are elaborate, generally hemispherical or cup-shaped, sometimes arched, usually lined with hair or feathers, but so diversified as not to

admit of a brief characteristic description. Some nestle on the ground, some in holes in the earth, in trees, in buildings, or among stones, others on the branches of trees. The eggs vary from four to ten, and the young, which are born blind, are at first scantily covered with down. The males are larger than the females, and often much superior in beauty, but in very many instances the plumage of the sexes is so similar that they cannot be distinguished without dissection.

Authors differ exceedingly as to the families which may be considered as belonging to this order, which, viewed with reference to our own country, is more numerous in species than any other. Without entering here upon any observations relative to the families as cosmopolitan, I shall merely state that with us are found representatives of the *Myrmotherinæ*, *Turdinæ*, *Alaudinæ*, *Motacillinæ*, *Sylviinæ*, *Saxicolinæ*, and *Parinæ*. The Myrmotherinæ, of which however we have only one species, and it not one of the most characteristic, are in a manner intermediate between the Corvinæ, Thremmaphilinæ, and Turdinæ. The latter are, in like manner, allied to the Thremmaphilinæ, Myrmotherinæ, Sylvianæ, and Alaudinæ. These again are intimately connected with the Emberizanæ, Turdinæ, and Sylvianæ; which pass on the one hand into the Turdinæ, and on the other into the Alaudinæ, while in another direction they manifest an affinity to the Parinæ and Reptatores. Lastly, the Parinæ are manifestly connected with the Sylvianæ on the one hand, and with the Reptatores on the other. Some of these various affinities will be pointed out in speaking generally of the different families.

The chief food of the species which occur in Britain is, in winter and spring, worms, pupæ, snails, and seeds; in summer and autumn, insects, larvæ, and fruits. One species lives entirely on aquatic insects and mollusca, in search of which it goes into the water, diving to the bottom. Some are almost equally insectivorous and granivorous, as the Larks; others essentially insectivorous, as the Wheatear and Whinchat. The particular propensity of the species in this respect indicates in some measure its affinity to other families; but it is not peculiar to the Cantatores to vary their food, for on none of the families of land birds has nature imposed a strictly defined regimen.

MYRMOTHERINÆ.

ANTCATCHERS AND ALLIED SPECIES.

The Myrmotherinæ, which are in some respects intermediate between the Corvinæ and Turdinæ, are readily distinguished from the former by their wanting the reversed stiff feathers at the base of the upper mandible, and from the latter by their comparatively short, concave wings, and especially by the remarkable abbreviation of their tail, which gives them a peculiar appearance. To this family belong the genera *Myrmothera* of Vieillot, *Grallaria*, *Pitta*, *Chamæza*, *Cinclus*, and a few others. Of none of them however are there any representatives in Britain excepting a single species of that last mentioned.

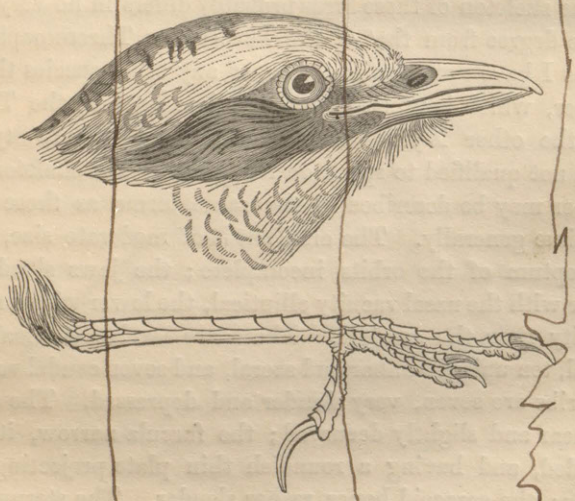


Fig. 117.

In their general form they are full and compact; their body being ovate and rather deeper than broad; their neck somewhat short, their head oblong, compressed, and generally rather large.

The bill is not essentially different from that of the Thrushes and Orioles, being moderately stout, shorter than the head, straight, with the dorsal outline convexo-declinate, the tip narrow, the edges direct, and the upper mandible slightly notched. The eyes and ears are of moderate size. The feet are rather long and stout; the tarsus compressed; the toes of moderate size, the first stouter and nearly as long as the second, which is a little shorter than the fourth, the third much longer, and united to the fourth at the base; the claws moderate, arched, compressed, laterally grooved, and in old birds rather blunt from being worn.

The wings are short, broad, concave, and rounded; the quills nineteen; the first primary very short and narrow, the second and third longest; the secondaries long. The tail is always short, sometimes extremely abbreviated; convex above, even or rounded, and composed of twelve rather broad rounded feathers. The plumage is various, generally full and soft, its colours often brilliant, at other times dull, so that no general character can be derived from it.

The skeleton of these birds probably differs in no very appreciable degree from that of the Turdinæ or Thremmaphilinæ; but as I have not examined that of any other species than our Dipper, which is precisely intermediate between the Turdinæ and the other Myrmotherinæ, and therefore not "typical," I am not qualified to speak on this point. The skeleton of the Dipper may be described in the same terms as those of the Turdinæ generally. The cranium is of moderate size, ovate; the septum of the orbits incomplete; the jaws slender, the upper with the nasal vacuity elliptical, the lower with an oblong vacuity near the condyle. There are twelve cervical, eight dorsal, ten united lumbar and sacral, and seven caudal vertebræ. The ribs are seven, very slender and depressed. The scapula is linear and slightly decurved; the furcula narrow, its curve rounded, and having a roundish thin plate projecting backwards; the coracoid bones rather slender. The sternum is of moderate length, broad, anteriorly narrower; its posterior margin broad and nearly straight; its anterior median process long and furcate. The humerus is short; the cubital bones a fourth longer; those of the hand of the same length as the cubitus.

The pelvis is of moderate size; the iliac bones oblong, the pubic linear and slightly recurved. The femur is short; the tibia nearly two-thirds longer, the fibula extending a third down; the tarsal bone trigonal and rather stout; the digital bones, and those of the hand, as described in the character of the order.

The digestive organs of the Dipper will be mentioned in the description of that species.

The Myrmotherinæ are for the most part natives of the warmer regions of the globe; but the genus to which belongs the only species that occurs in Britain, is composed of species which inhabit cold and temperate countries, and particularly the valleys of mountainous districts. Were it not for its greater affinity to these foreign genera, it might be referred to the family of Turdinæ. Indeed, the Myrmotherinæ generally may be considered as Thrushes with shortened tail and wings.

SYNOPSIS OF THE BRITISH GENERA AND SPECIES.

GENUS I. CINCLUS. DIPPER.

Bill rather short, slender, compressed, slightly bent upwards; the tip of the upper mandible a little deflected, the notch slight; feet strong; tarsus rather short, compressed, anteriorly with a single long plate, and four inferior scutella; toes rather stout, claws moderate, strong, arched, compressed, blunted; wings and tail short and concave.

1. *Cinclus Europæus. European Dipper.* Head and hind-neck dark brown; upper parts dark grey, the feathers bordered with black; fore-neck and part of breast white, the rest of the breast brownish-red.

This very remarkable genus

Genus IV. CINCLUS. DIPPER. Bechst.

Bill rather short, slender, slightly ascending, deeper than broad at the base, much compressed towards the end; upper mandible with its dorsal outline slightly arched, the ridge rounded, the sides convex, the edges sharp and inflected, with an obscure notch close to the narrow, slightly deflected tip; lower mandible slightly bent upwards, the angle medial and very narrow, the crura having the sides sloping outwards, the dorsal line slightly convex, the culmen narrow and rounded, the edges sharp and inflected, the tip narrow, and rather acute; the gape-line straight, commencing under the anterior angle of the eye.

The mouth very narrow; the upper mandible internally narrow, concave, with a central depressed line; palate nearly flat; aperture of the posterior nares linear, margined with large acute papillæ; lower mandible concave, with a central and two lateral prominent lines. Tongue slightly extensile, sagittate, narrow, grooved, serrulato-setose towards the end, and terminated by two bristle-points. Œsophagus of nearly uniform diameter; proventriculus with oblong simple glandules; stomach muscular, roundish, compressed; its inner coat dense, tough, and rugous, intestine of moderate length, its duodenal portion wider; the cœca very small and cylindrical. Plate XIII, Fig. 1.

Nostrils linear, direct, with a bare margin above, in the lower and forepart of the nasal membrane, which is covered with very short feathers. Eyes rather small; eyelids densely feathered. External ear of moderate size, and roundish.

The general form is short, full, and compact; the head oblong, rather small, compressed, the forehead low; the neck rather short; the body rather deeper than broad. The legs are strong, of ordinary length; tarsus compressed, covered anteriorly with a long undivided plate, and four inferior scutella, posteriorly with two long plates united at a very acute angle,

and several transverse rugæ below. Toes rather large and strong, covered above with a few plates, papillar beneath ; the first, second, and fourth nearly equal, the third much longer ; the second slightly connected at the base by a web with the third, which is connected with the fourth by a longer but narrower web, as far as the second joint of each. Claws rather long, arched, bluntish, much compressed, slightly margined, laterally grooved, that of the hind toe considerably larger.

Plumage ordinary, rather compact, the feathers oblong and rounded ; those about the base of the bill very short and somewhat velvety, without bristly points. No bristles at the base of the bill. Wings rather short, broad, convex, and rounded ; primary quills ten, the first very short and narrow, the third longest, and, with the next three, slightly cut out on the outer web towards the end ; secondary quills nine, long, broad, rounded. Tail short, even, of twelve rather broad feathers, which are slightly decurved. Legs feathered to the tibio-tarsal joint. The whole body closely covered with down, as in the diving sea-birds.

This genus is composed of at least three species : *Cinclus Pallasii*, found by Professor Pallas in the Crimea ; *C. Americanus*, which inhabits Mexico and the Rocky Mountains; and *C. Europæus*, which occurs in most parts of Europe. These species present a remarkable uniformity as to form, and differ little in size. They frequent the margins of streams and lakes, and feed on aquatic insects and mollusca, to obtain which they enter the water, pass beneath its surface, and, although not web-footed, make their way in it even when the current is strong. It is probable that the manners of the other species are very similar to those of the European ; but as little is yet known respecting them, I cannot here offer general remarks equally applicable to all.

CINCLUS EUROPÆUS. THE EUROPEAN DIPPER.

WATER OUZEL. WATER CROW. WATER PIET. DIPPER. DUCKER. KINGFISHER. AN GOBHCHAN UISGE. GOBHA UISGE. GOBHA DUBH NAN ALLT.

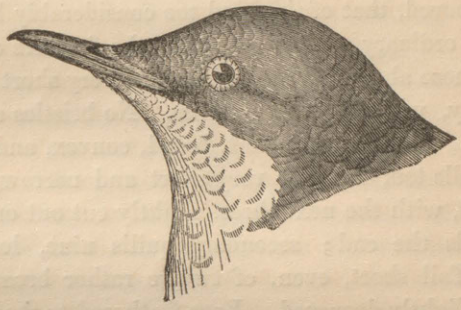


Fig. 118.

Sturnus Cinclus. Linn. Syst. Nat. I. 290.
Turdus Cinclus. Lath. Ind. Orn. I. 343.
Water Ouzel. Mont. Orn. Dict.
Cincle plongeur. Cinclus aquaticus. Temm. Man. d'Orn. I. 177.
European Dipper. Cinclus aquaticus. Selb. Illustr. I. 172.
Cinclus aquaticus. Water Ouzel. Jen. Brit. Vert. An. 98.

Male with the head and hind-neck dark brown, the upper parts dark grey, the feathers broadly margined with black, the throat and fore-neck white, the breast brownish-red. Female similar, with the tints less deep. Young with the upper parts all grey, the feathers margined with black, the fore-neck and breast white, undulated with dusky.

Male.—Among our native birds the Dipper is remarkable for the compactness of its form, in which respect, as well as in some of its motions and attitudes, it bears a considerable resemblance to the Wren. Its principal features being precisely accordant with the generic description already given, those only which are peculiar or more characteristic are selected on the present occasion. The bill in old individuals is generally

blunted at the point, and sometimes wedged; whereas in young birds it is similar to that of a Thrush. For the same reason, the claws are commonly worn at the point. The tarsus has a single long plate and three inferior scutella in front, the first toe eight, the second nine, the third twelve, the fourth nine scutella. The œsophagus is of uniform diameter, very narrow, two inches and three quarters in length, and having a diameter of two-twelfths. The belt of proventricular glands is half an inch long. The stomach is small, roundish, compressed, half an inch long, seven and a half twelfths in breadth, and four and a half twelfths in thickness; its muscular coat thick, with the tendons large, being two and a half twelfths in diameter; the cuticular lining soft and rugous. The intestine is twelve inches long, its duodenal portion two twelfths and a half in diameter; it then gradually diminishes to a twelfth and a half; the cœca are generally two twelfths long, but vary, and are often unequal; the rectum enlarges from the commencement, and the cloaca has a diameter of four twelfths and a half.—See Pl. XIII, Fig. 1.

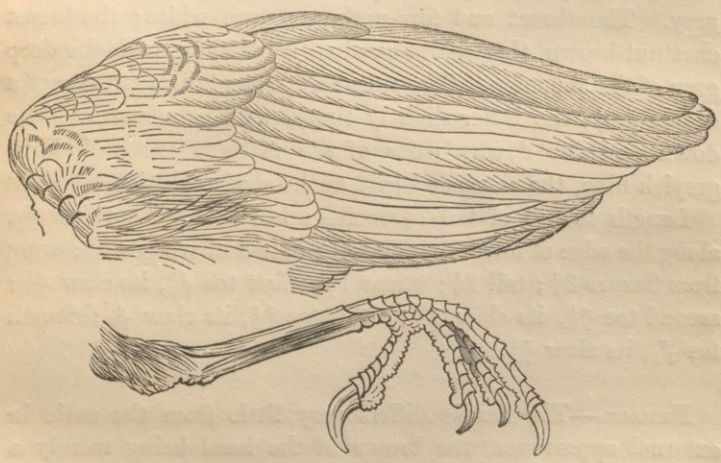


Fig. 119.

The plumage is of ordinary length, rather compact, soft, slightly glossed, very short on the fore part of the head. The wings when closed extend one-third down the tail, and when expanded are of a semi-ovate form, broad, rounded and

concave, with nineteen quills. The first quill is very short and narrow, the third longest, but the second and fourth are scarcely shorter; the other primaries are graduated; the third, fourth, and fifth, slightly cut out on the outer web. The quills are all much decurved; the secondaries also slightly curved inwards, and rounded. The tail is short, even, of twelve rather broad, abrupt, slightly rounded feathers, which are slightly curved downwards, although the tail itself is generally held in a horizontal direction, or inclined upwards.

The bill is bluish-black, tinged with brown at the edges; the inside of the mandibles blackish; the palate white; the tongue blackish anteriorly, yellowish behind, as is the intercrural space. Iris pale brown, with a ring of black in the middle. The tarsi and toes are bluish-grey, tinged with brown; the claws dusky. The head and hind-neck are deep brown; both eyelids with a white speck. The general colour of the upper parts is dark-grey, each feather broadly margined with black. The first row of coverts and all the quills are slightly tipped with pale grey; the quills and tail dark-brown, tinged with grey. The throat and fore-neck are pure white; the breast chestnut-brown, that colour gradually blending with the deep grey of the abdomen. The sides and lower tail-coverts are of a deeper grey, the latter slightly tipped with pale brown. The down and the downy parts of the feathers are dull dark-greyish blue, the concealed part of the shafts whitish.

Length to end of tail $7\frac{3}{4}$ inches; bill along the ridge $\frac{9}{12}$, along the edge of lower mandible 1; extent of wings $12\frac{1}{4}$; wing from flexure $3\frac{3}{4}$; tail $2\frac{1}{2}$; tarsus $1\frac{2}{12}$; first toe $\frac{5\frac{3}{4}}{12}$, its claw $\frac{4\frac{1}{2}}{12}$; second toe $\frac{6\frac{1}{2}}{12}$, its claw $\frac{5\frac{1}{2}}{12}$; third toe $\frac{11}{12}$, its claw $\frac{4}{12}$; fourth toe $\frac{7}{12}$, its claw $\frac{5\frac{1}{2}}{12}$.

Female.—The female differs very little from the male in external appearance, the brown of the head being merely a little lighter, the brownish-red of the breast less intense, and the white of the fore-neck of somewhat less extent.

Length to end of tail $7\frac{1}{4}$ inches; extent of wings 12; bill along the ridge $\frac{8\frac{1}{2}}{12}$, along the edge of lower mandible 1; wing from flexure $3\frac{3}{4}$; tail $2\frac{1}{4}$; tarsus $1\frac{2}{12}$; first toe $\frac{5}{12}$, its claw

$\frac{5}{12}$; second toe $\frac{6}{12}$, its claw $\frac{4}{12}$; third toe $\frac{10\frac{1}{2}}{12}$, its claw $\frac{4\frac{1}{2}}{12}$; fourth toe $\frac{6}{12}$, its claw $\frac{5}{12}$.

Variations.—Adult individuals vary chiefly with respect to the tints of the breast, that part having more or less of the red or chestnut colour, and sometimes a white band down the centre. The changes that take place in the plumage as it becomes old and worn, are not very remarkable. The tail-feathers and primary quills are those which suffer most from rubbing. I have shot individuals of which the sternal or thoracic region was brownish-black, without any red, but in every other respect they appeared to be precisely similar to other individuals and I consider them as young birds in their second plumage. M. Temminck, on the other hand thinks that black-breasted birds to be individuals which have attained a very advanced age. They constitute, in his opinion, the Cinclus melanogaster of Brehm.

Habits.—The Dipper is, in many respects, one of the most interesting of our native birds. Residing chiefly in the wild glens of the mountainous districts, it now and then presents itself to the wandering naturalist as it flits along the streams, or is seen perched on a stone in the midst of the water, the white patch on its breast rendering it conspicuous at a great distance. ~~Even the more collector of plants, who, of all men, seems to be the least capable of comprehending the harmonies of nature,~~ the botanist, in search of the drags of the desolate corry, awhile pauses to gaze upon it, as it shoots past him in its rapid and even flight; the solitary shepherd, wending his way to the mountain corry, meets it with delight; and the patient and contemplative angler, as he guides his tackle over the deep pool, smiles upon the tiny fisher, whose frequent becks have attracted his notice. The singular circumstance of its obtaining its food under the surface of the water, although in form and structure it is allied to the Thrushes and other land birds, has especially drawn the attention of ornithologists to it; and the explanation of its mode of progression in that element has exercised their ingenuity, although very few have based their conjectures on actual observation. Lastly, the land-proprietor or his factor, too much occupied with other pursuits to inquire for themselves, and trusting to the reports of prejudiced persons, direct their gamekeepers and shepherds to destroy the lively and harmless creature whenever an opportunity occurs, because it has been supposed to devour the eggs and fry of the salmon and trout.

This bird having, in a particular manner, attracted my attention in the course of my rambles, I have been enabled

to trace its history in a satisfactory degree, so that the account here presented of it I consider as among the most accurate of those which I have written.

It frequents the sides of our largest rivers as well as streams of inferior magnitude, especially such as are clear and rapid, with pebbly or rocky margins. I have met with it in every part of Scotland, as well as in the hilly parts of Cumberland and Westmoreland; and it is said by Montagu to occur in Wales and Devonshire. In Scotland it is not peculiar to the mountainous regions, being found in the lowest parts of the Lothians, as well as on the Alpine rills of the Grampians, and other elevated tracts; but it is generally more abundant in hilly ground, and, although never very common in any district, is nowhere more plentiful than on the Tweed, the Tay, the Dee, the Spey, and their tributaries. It is also a well-known bird in all the larger Hebrides. It is not only a permanent resident, but seldom shifts its station to any great extent, excepting during continued frosts, when it descends along the streams, and is seen flitting about by the rapids and falls. Mill dams are also favourite resorts, especially in winter and spring. On lakes having a muddy or peaty bottom at their edges I have never observed it; but it may sometimes be seen on those which are shallow and pebbly at the margins, as on St. Mary's Loch in Yarrow, ~~where I have shot it,~~ and even by the deep clear alpine lakelets of the Grampians, as on the Lochan-fuine of Cairn-Toul, where, in the autumn of 1850, I divided my attention with the fine tufts of Carex pulla, which I there met with for the first time.

The flight of the Dipper is steady, direct, and rapid, like that of the Kingfisher, being effected by regularly timed and quick beats of the wings, without intermissions or sailings. It perches on stones or projecting crags by the sides of streams, or in the water, where it may be seen frequently inclining the breast downwards, and jerking up the tail, much in the manner of the Wheatear and Stonechat, and still more of the Wren; its legs bent, its neck retracted, and its wings slightly drooping. It plunges into the water, not dreading the force of the current, dives and makes its way beneath the surface, generally moving against the stream, and often with surprising speed. It does not, however, immerse itself head foremost from on high like the Kingfisher, the Tern, or the Gannet, but either walks out into the water, or alights upon its surface, and then

when its margin is shallow,

plunges like an Auk or a Guillemot, slightly opening its wings, and disappearing with an agility and a dexterity that indicate its proficiency in diving. I have seen it moving under water in situations where I could observe it with certainty, and I readily perceived that its actions were precisely similar to those of the Divers, Mergansers, and Cormorants, which I have often watched from an eminence as they pursued the shoals of sand-eels along the sandy shores of the Hebrides. It, in fact, flew, not merely using the wing from the carpal joint, but stretching it considerably, and employing its whole extent, just as if advancing in the air. The general direction of the body in these circumstances is obliquely downwards; and great force is evidently used to counteract the effects of gravity, the bird finding it difficult to keep itself at the bottom, and when it relaxes its efforts, coming to the surface like a cork. Montagu has well described the appearance which it presents under such circumstances:—"In one or two instances, where we have been able to perceive it under water, it appeared to tumble about in a very extraordinary manner, with its head downwards, as if picking something; and at the same time great exertion was used, both by the wings and legs." This tumbling, however, is observed only when it is engaged in a strong current, and its appearance is greatly magnified by the unequal refraction caused by the varying inequalities of the surface of the water. When searching for food, it does not proceed to great distances under water; but, alighting on some spot, sinks, and soon reappears in the immediate neighbourhood, when it either dives again, or rises on wing to drop somewhere else on the stream, or settle on a stone. Often from a shelving crag, or large stone, it may be seen making short incursions into the water, running out with quiet activity, and presently bobbing up to the surface, and regaining its perch by swimming or wading. The assertion of its walking in the water, on the bottom, which some persons have ventured, is not ~~made good by observation, nor countenanced by reason and the nature of things~~. The Dipper is by no means a walking bird: even on land I have never seen it move more than a few steps, which it accomplished by a kind of leaping motion. Its short legs

correct, if it be meant thereby that as a bird walks on the ground, in the air, so does it walk on the bottom in the water.

and curved claws are very ill adapted for running, but admirably calculated for securing a steady footing on slippery stones, whether above or beneath the surface of the water. Like the Kingfisher it often remains a long time perched on a stone, but in most other respects its habits are very dissimilar.

The first opportunity which I had of observing this bird advancing under water, occurred in Braemar, in 1819, when from the bank of the stream which passes by Castleton I noticed one "tumbling about" in the rapid current. In September 1832, I watched a Dipper for some time, on a part of the Tweed, where the current was very strong. It flew off from the shore, and alighted in the middle of the stream, where it immediately dived. Re-appearing a little way farther up the river, it floated for a few seconds, dived, emerged, and flew to the opposite bank, on reaching which it again disappeared under water for a short time, and thus continued its exertions. When perched on a stone near the shore, especially if the water be not much agitated around, it usually makes short incursions into it, apparently for the purpose of procuring food, and returns to its station. On these occasions it is not difficult to approach it, provided due precaution be used; but in general it is shy and easily alarmed. I have several times shot an individual which observed me as I was quietly walking up to it; but it is not often that one remains until you come within shot. A method which I have often successfully practised was to mark the position of the bird at a distance, taking note of an object on the bank opposite to it, then make a circuit, and suddenly come upon the spot. When one has been pursued either up or down a stream for a quarter of a mile or so, it usually turns to regain its ordinary station, when it may be shot as it shoots past.

In August 1834, while ascending White Coom, the highest mountain in Dumfries-shire, accompanied by my son, I observed a Dipper retreating beneath a large stone, over which the water fell, in the midst of a streamlet that flowed along the bottom of a narrow scar or rut. Imagining that its nest or young might be concealed there, we went up to the place, and, on perceiving the bird behind the little waterfall, endeavoured

to catch it, on which it sallied forth, plunged into a pool, and attempted to escape down the stream, but without success, for we met it at every turn, and it was obliged to betake itself again to its retreat. We now turned off the water from the stone, when it again plunged into the pool, and after some turnings, at length effected its escape. On emerging at some distance it flew off, and I considered it strange that it had not used its wings at first, as it certainly could more easily have escaped through the air than through the water. The chase afforded another rare opportunity of viewing its subaqueous flight, which, in all probability, was caused by excessive alarm. It flew about in the pool, just as a bird would fly in a confined space in the air, but of course with less velocity, and on diving at first seemed covered with small air-bubbles which adhered to its surface.

On being wounded the Dipper commonly plunges into the water, flies beneath its surface to the shore, and conceals itself among the stones or under the bank. In fact, on all such occasions, if enough of life remains, it is sure to hide itself, so that one requires to look sharply after it. In this respect it greatly resembles the Common Gallinule or Water-hen. In the winter of 1829, I shot one on the Almond, which flew to the other side, walked deliberately out into the water, disappeared, and slowly emerged under a bank at some distance, where I found it after wading through the stream, which was partially frozen. Another had just strength sufficient to fly into a deep hole under a bridge on the Yarrow, partially filled with water, on which it was found floating dead. In August 1834, I shot a Dipper on Mannor Water, in Tweeddale, when it flew off, dived, and hid itself under a bank, on which I forded the stream and endeavoured to secure it, but it slipped out under water, swam down the current twenty yards or so, and got under a large stone, where it was traced. The introduction of the gun-rod only caused the persecuted bird to retreat as far as it could, and while I was employed in removing some pebbles and gravel from behind the stone, it slipped out under water, and proceeded down the stream a considerable way before it rose to breathe. I noticed the place where it

dived in under the bank, and it being at length obliged to come up to respire, I met the bird with my hand, and so secured it.

When wounded and caught, it struggles hard, grasping firmly with the feet, but does not attempt to bite. I mention this circumstance as common to certain species of birds, such as the Fieldfare, Blackbird, and Starling, which, without possessing the power of annoying their enemy, yet do not tamely suffer themselves to be destroyed, but struggle to the last, undismayed and ready to use the slightest chance of escape. Other species, equal in strength, such as the Snipe, the Golden Plover, and the Lapwing, do not struggle so vigorously, but meet their fate in a quiet and apparently stupid manner. Some birds, again, such as the Tits and Warblers, although evidently extremely frightened on being seized, watch every opportunity of biting. I need scarcely add that some, as the Kestril and Sparrowhawk, grasp and bite with as much good will as effect.

The most melancholy ornithological exhibition that I remember to have witnessed, was that of a wounded Dipper, which was shot through the lungs, above Cramond Bridge, near Edinburgh. It stood still, without attempting to fly off, apparently insensible to all external objects, its legs bent, its wings drooping, its head declined. The blood was oozing from its side and gurgling in its windpipe, which the poor bird made ineffectual efforts to clear. At intervals, a convulsive heaving of the chest took place, followed by an effort to vomit; and in this state the sufferer stood for five minutes until I got over the stream to it, when it expired in my hand. In the agony of death, the pupil became contracted to a mere point, and presently after dilated, when the lower eyelid gradually rose and covered the eye. This is commonly the case in birds, which do not expire with the eyes open, like man and most quadrupeds.

The food of the Dipper is said by authors to consist of small fishes, roe, and water-insects. Thus, according to Willughby, "Pisces prædatur, nec insecta aversatur." Montagu states that he saw an "old bird flying in with a fish in its bill," and

that " these birds will sometimes pick up insects at the edge of the water." M. Temminck alleges that its food consists of " insectes d'eau, demoiselles et leurs larves ; souvent du frai de truite." Mr Selby judiciously combines these statements, informing us that " water insects, and the fry and spawn of fish form its food." Mr Jenyns, more wary, confines it to "aquatic insects." It would answer no good purpose to bring forward the notions of other compilers. There is nothing incredible in all these statements, although it is to be remarked that no one states that he has actually observed fishes, or their eggs, in the stomach of this bird. I have opened a great number of individuals, at most seasons of the year, but have never found any other substances in the stomach than Lymneæ, Ancyli, Coleoptera, and grains of gravel. As to the ova and fry of the salmon, there is no evidence whatever that the Dipper ever swallows them ; and, therefore, the persecution to which this bird has been subjected in consequence of the mere suspicion, ought to cease until the fact be proved. That the mollusca above mentioned form a principal part of its food, was never suspected, and therefore I was much pleased with making the discovery, which satisfactorily accounted to me for all the subaqueous excursions of the species.

The Dipper is generally seen in pairs, sometimes singly, and, for a short period, at the breeding season, in families, but never in flocks. In some favourite places, such as a waterfall, or series of rapids, one may in winter find so many as four or five individuals, but always scattered. Its song is short, but lively, and continued at intervals. It bears no resemblance to the full song of the Thrushes, but closely resembles the subdued winter warble of the Redwing and Starling, or the first notes of a young Song Thrush. This gentle warble is not confined to any period of the year, but may be heard during sunny weather at all seasons. Its common note, which it frequently utters while perched on a stone, or while flying along the stream, resembles the syllable *chit*, and may be heard, when the winds and waters are still, at the distance of from four to five hundred yards.

About the middle of spring it begins to form its nest, so that its first brood is abroad at the same time with that of the Blackbird. The nest, which is placed among the moss on the bank

of a stream, or among the roots of a tree in a concealed place overhanging the water, sometimes in a crevice of the rock, or under a bridge, or even in the space behind a waterfall, varies considerably in form and size, according to its position; but is always very bulky, arched over, and resembles that of the Wren more than of any other bird. A perfect specimen found by my friend Mr Weir, in the county of Linlithgow, presents externally the appearance of a somewhat flattened elliptical mass, measuring ten inches from the front to the back part, eight and a half in breadth, and six in height. The aperture is in front, of a transversely oblong form, three inches and a quarter wide, and one inch and a half high. The exterior is composed of various species of mosses, chiefly hypna, firmly felted, so as to form a mass not easily torn asunder, especially in its lower part. This portion may be considered as forming a case for the nest properly so called, and in this respect resembles the mud case of the swallows. The nest itself is hemispherical, five and a half inches in diameter, composed of stems and leaves of grasses, and very copiously lined with beech leaves. I have examined several other nests, which were similarly constructed, and all lined with beech leaves, one having a few of the ivy, and another one or two of the plane, intermixed. Montagu describes the nest as "very large, formed of moss and water-plants externally, and lined with dry oak-leaves;" and others have stated that the lining is of leaves of various trees, which may depend upon the locality. The eggs, five or six in number, are of a ~~regular~~ oval form, rather pointed, pure white, varying from eleven-twelfths to an inch and one-twelfth in length, and averaging nine-twelfths in their greatest breadth. They are somewhat smaller than those of the Song Thrush.

In addition to my own observations, I have much pleasure in presenting the following interesting account of the nidification of this species, by Thomas Durham Weir, Esq.

"Boghead, 22d December 1837.—In this neighbourhood, about the middle of April, the Dippers begin to build their nests. They are constructed with much ingenuity, and are large for the size of the birds. The exterior part of them is composed of moss very compactly felted together, having a

hole in their side, resembling that of the Common Wren. In the interior part, the under layer is lined with the stalks of strong grass, and the upper one, in all the nests that I have seen, with the leaves of the beech or the oak. To the place where these birds have once taken up their residence, they are strongly attached. In the hole of an old wall at the back lade of

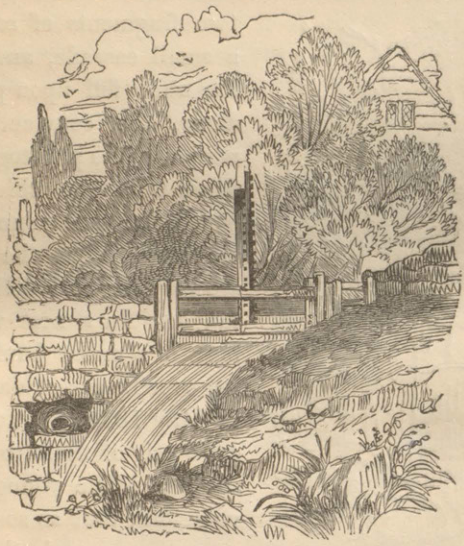


Fig. 120.

Livingston mill-dam, for a considerable time, I have observed one of their nests. Mr Meikle, the miller, told me that a pair of them have built in it for thirty-one successive years, and that they generally had three broods in the season, and four birds in each of them. Although the nest was within a foot of the waterfall, which even sometimes passed over it, they nevertheless flew in and out with the greatest apparent ease. I am acquainted with a boy, who told me that he has taken one repeatedly out of her nest, and after having replaced her, she continued to sit upon her eggs. Being anxious to procure a good specimen of the female, I caught one whilst sitting upon her brood. As several of the feathers of her wings and tail were much worn, I pulled them out, and set

her at liberty. In the course of a few hours however she returned, and, unmoved by this unusual treatment, fed her little ones as anxiously and carefully as ever, and although deprived of her partner, brought them up to maturity. On the banks of the river Avon, about a mile and a half below the bridge of Linlithgow, I last summer discovered a nest in rather a curious situation. It was built in an angle between two fragments of rocks under a small cascade, and although the water fell upon part of the dome, the compactness with which it was put together rendered it impenetrable.



Fig. 121.

"When the young Dippers are nearly ripe, the old ones are very shy and difficult to be caught. In a nest which was built in a mossy bank projecting over Boarbaughlaw Water, in May 1835, I attempted to get a pair of them, but did not succeed. The young were so voracious, that as soon as their parents appeared, they popped their heads two or three inches out of the nest. To prevent them from doing so, I tied a string round their legs, and fastened them to the back part of it, and then placed a hair gin in front. Of this mode of procedure they were however so suspicious, that even after it had been removed, rather than they would venture to give them food, they allowed them to perish with hunger. I have twice tried this experiment since, but with no better success."

Several authors have mentioned that the young, although yet unfledged, will, if disturbed, leave the nest and scramble into the water, diving, and emerging at a distance. This I have not had an opportunity of observing, and therefore quote the following statement of Montagu on the subject: "The young were nearly full feathered, but incapable of flight, and the

moment the nest was disturbed, they fluttered out and dropt into the water, and to our astonishment instantly vanished, but in a little time made their appearance at some distance down the stream; and it was with difficulty two out of five were taken, as they dived on being approached." Mr Durham Weir has favoured me with the following note.— p. 491.

Young.—The general colour of the upper parts of the young bird, when fully fledged, is dull grey, lighter than that of the adult; the head and hind-neck are of the same colour as the back, all the feathers being margined with brownish-black. The wings are brownish-black, the quills, alula, and larger coverts margined with grey, the latter slightly tipped with greyish-white. The throat, fore-neck, and breast, are of a delicate pale buff or cream colour, intermixed with blackish, the margins of all the feathers being of the latter colour. The upper and hind part of the sides, the abdomen, and lower tail-coverts, are dull grey, mixed with cream colour, and the proximal tail-coverts are chiefly of the latter. The tail is like the wings, but tipped with brownish-white. The bill and eyes are as in the adult, but the feet are paler anteriorly, as are the toes, and the claws are hair-brown, margined with whitish.

Progress toward Maturity.—At the first autumnal moult, which takes place in September, the young assume nearly the appearance of the adults: the fore-neck becomes white, the breast dusky with more or less red, and the head brown; but it is not until the second change that the colouring is completed.

Remarks.—The genus *Cinclus* may be considered as placed on the limits of the families of *Turdinæ* and *Myrmotherinæ*, being in fact more allied to *Turdus* than to *Pitta*, although through *Chamæza* perhaps more obviously related to the latter. The digestive organs of the Dipper are entirely analogous to those of the Thrushes and allied genera, but bear no resemblance to those of the Piscivorous birds, the œsophagus being narrow, and the stomach a true gizzard. The bird, being destined to feed upon aquatic insects and mollusca, which adhere to the stones under the water, is fitted for making its way to

the bottom at small depths, and maintaining itself there for a short time, a minute or more, in conformity with which design its plumage is rather short and dense, its tail abbreviated, its wings short, broad, and strong, its bill unencumbered by bristles, and of the proper form for seizing small objects, as well as for detaching them from stones. Having its feet constructed like those of the Thrushes, but proportionally stronger, the Dipper thus forms a connecting link between the slender-billed land birds and the diving Palmipedes, as the Kingfisher seems to unite them with the plunging birds of the same order.

When the bird is young, its bill precisely resembles that of the genus Turdus, being merely a little more slender; but when it is advanced in age, the bill is not only proportionally but actually much shorter, and the tips by being rubbed become in some degree similar to those of the bill of the Woodpeckers, although less neatly wedged. In this respect, the Dipper resembles the Oystercatcher, and the change in the form of the bill is caused by the same action in both species. Again, in old birds, the thin edges of the mandibles become marked with parallel cuts, similar to those of the mandibles of the Gannet, although generally perpendicular, as in the Jabiru. The claws also, which in young birds are acute, become quite blunt and shortened in old individuals, which shews that they are subjected to rough usage in scrambling among the stones at the bottom of streams. As the bird neither plunges from an eminence, like the Kingfisher, nor is furnished with webs to its toes, it is not fitted for pursuing fishes under water, and indeed could not possibly catch them, although it might seize fry not yet disentangled from the gravel. As the body is nearly as broad as deep, the bird can float with ease; but this it might do were the body narrow, as in the Water-hen. It has been alleged that the Dipper, not having webbed feet, cannot swim; but this is not correct, for although it is unable to make way against a strong current by swimming, I have seen it move slowly along the surface in smooth water.

The food of this bird is indicated by the following notes made at the different times of examination. One shot on the Almond on the 29th August 1835 had its stomach filled with

fragments of small insects, among which a Hydrophilus was distinguished; there was also seen a specimen of Ancylus fluviatilis. In one shot on Mannor Water on the 15th August 1834, were remains of coleoptera, and a great quantity of small stones. In the intestine of this individual was a very long tapeworm. The stomach of one shot on a rivulet near St Mary's Loch, in Yarrow, on the 3d September 1832, contained remains of shells of Lymnea peregra. In that of two individuals examined in May 1836, were coleopterous insects and gravel. And in one shot about the 20th November 1837 were remains of insects and caddisworms, with particles of quartz. Although I have opened many more, I have never found in them remains of fish or roe. Nor does the dung of the bird when left in a place frequented by it ever present an appearance similar to that of the Kingfisher.

The sternum of this bird is represented by the subjoined figures, 122 exhibiting it as viewed laterally, 123 as seen from beneath. The spine is marked *a e*, the anterior forked process *b*, the costal processes *c c*, the posterior margin *d d e f f*, its notches *g g*, the coracoid bones *h h*, the furcula *i*, the scapulæ *j j*.

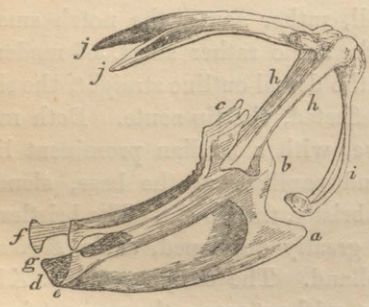


Fig. 122.

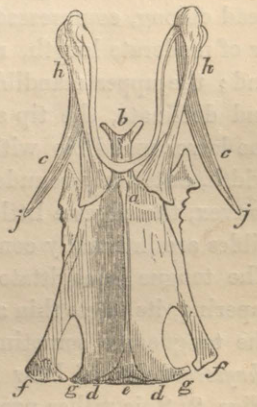


Fig. 123.

From p. 44.

Family I. TURDINÆ. Turdine Birds.

THRUSHES AND ALLIED SPECIES.

In the family of Turdinæ I would include not only Turdus, with its various subdivisions, but most of the numerous genera forming the sections designated by Mr Swainson and his followers by the names of *Brachypodinæ*, *Merulinæ*, and *Crateropodinæ* ~~and *Oriolinæ*~~, which agree in their more important characters, but which it is unnecessary to describe in a work like the present, confined to the birds of a small tract of country. Only two genera of this family have representatives in Britain, namely ~~*Oriolus*~~ and *Turdus*, which, with the others alluded to above, present the following general characters. Cinclus

They are birds of small size, our Blackbird and Missel Thrush being among the largest, while the smallest does not exceed the Robin. In form they are rather slender, having the body ovate, and deeper than broad, the neck rather short, the head oblong, compressed, and of moderate size; the bill short or of moderate length, rather strong, compressed towards the end; the upper mandible with its dorsal outline a little convex and declinate, the tip small, rather acute, the notch small; the lower mandible with the angle rather short, of moderate width, anteriorly rounded, the dorsal outline straight, the sides convex, the edges a little inflected, the tip acute. Both mandibles are internally concave, with a median prominent line. The tongue is sagittate and papillate at the base, slender, tapering, its edges thin and bristly, the tip slit. The bristles on the tongue are sometimes greatly developed, as in *Sericulus chrysocephalus* of New Holland. The œsophagus, Pl. XIV, Figs. 2, 3, is rather narrow, without crop; the proventriculus oblong, with short cylindrical glandules; the stomach a gizzard of moderate strength, its lateral and lower muscles distinct; the intestine of moderate length, the cœca very small and cylindrical.

The eyes are of moderate size; the eye-lids feathered, with a narrow bare, crenate margin. The external ear large and roundish. The nostrils generally oblong, operculate in the lower and fore part of the nasal depression, which is feathered.

The legs are of moderate strength, but vary greatly in length; the tarsus compressed, covered anteriorly with seven scutella; of which the upper three are often indistinct. The toes are rather strong, compressed; the first, second, and fourth nearly equal, the third much longer, and united to the fourth at the base; the claws rather long, arched, compressed, laterally grooved, acute.

The plumage is ordinary, rather blended, the feathers generally rounded. There is almost always a row of short bristle-feathers along the basal margin of the upper mandible, ~~although they are so small in the Orioles that Mr Swainson erroneously gives as one of the characters of that group, "the base and the gape devoid of bristles."~~ The wings are of moderate length, broad, and more or less rounded, generally with nineteen quills, the first very small, the third and fourth longest; the secondaries long, broad and rounded. The tail is generally of moderate length, but sometimes long, and of twelve moderately strong straight feathers. and in some cases short,

The skeleton differs very little in structure from that of the Corvinæ, with which it may be best compared ~~and Thrommaphilinæ~~. The cranium is large, ovate, broad and rounded behind; the orbits very large, their septum incomplete; the jaws of moderate length and rather slender; the upper with the nasal vacuity large and elliptical, the lower almost straight, with an oblong vacuity near the condyle. The cervical vertebræ are generally twelve; the dorsal eight, of which the anterior has only a rudimentary rib; the united lumbar and sacral ten; the coccygeal seven. The ribs are seven, very slender, depressed, the first incomplete, and, as well as the last, without the posterior process, which is narrow and rather long. The scapula is linear and slightly decurved; the furcula narrow, hyoid, very slender, with the curve rounded, and having a roundish or oblong thin plate projecting backwards. The coracoid bones are rather slender, and diverge little. The sternum, Figs. 115 and 116, is of moderate length, broad, narrower anteriorly;

its posterior margin broad, straight or slightly curved, with a sinus of moderate depth on each side; the ridge high, with its lower outline slightly curved, its anterior concave; the median process long and broadly furcate; the lateral anterior processes large. The humerus is short; the cubital bones a fourth longer, the rest of the same length as the cubitus, consisting of two carpal bones, one large metacarpal, having an oblong incomplete space, a slender pollical, and three digital, two united bones forming the first phalanx. The pelvis is of moderate size; the iliac bones oblong and anteriorly rounded; the pubic linear, slightly recurved, with an oblong open space between them and the rest. The femur is short, the tibia nearly two thirds longer, with a slender incomplete fibula, extending only one third down. The tarsal bone is trigonal, and shorter than the tibia. The toes are four; the hind toe composed of a distinct metatarsal bone and two phalanges; the second of three, the third of four, the fourth of five phalanges; the extreme phalanges of moderate length, conical, slightly arched, laterally grooved. It must not be concealed that the differences between the skeletons of the Corvinæ, Thremmaphilinæ, and Turdinæ, are very slight, and that these three families, with the Myrmotherinæ, and others of the Cantatores are very intimately allied in structure.

The digestive organs are equally adapted for insects, worms, and soft fruits, which constitute the principal food of the different species.

The Turdinæ frequent the fields and pastures, where they advance by leaping; but generally betake themselves to thickets and woods to roost. Their flight is moderately rapid, and little undulated. Most of the species are more or less gregarious, unless during the breeding season. Their nests are generally placed on trees or shrubs, and artfully constructed. The eggs are five or six, usually spotted or freckled. The young are born blind, and remain in the nest until able to fly. Many of the species are remarkable for their superiority of song, while others are said merely to emit harsh cries. Species belonging to this family are found in all parts of the world.

SYNOPSIS OF THE BRITISH GENERA AND SPECIES.

GENUS I. ORIOLUS. ORIOLE.

Bill rather long, stout, nearly straight, as broad as high at the base; upper mandible with the ridge narrow, the sides sloping at the base; tarsus short, compressed, with seven distinct anterior scutella; toes of moderate size, the anterior spreading little, being united at the base; claws of ordinary length, arched, acute; wings rather long, the first quill short, the third and fourth longest; tail of moderate length, straight, rounded.

1. *Oriolus Galbula.* Golden Oriole. Male bright yellow, the wings and tail black, tipped with yellow, the loral space black. Female greenish-yellow above, yellowish-white beneath, with longitudinal dusky lines.

I. GENUS ~~II.~~ TURDUS. THRUSH.

Bill of moderate length, rather slender, straight, compressed; upper mandible with the ridge rather narrow, the sides convex; tarsus of moderate length, rather slender, compressed, with seven anterior scutella, of which the three upper are indistinct; toes of moderate size, the third and fourth united at the base; claws of ordinary length, arched, acute; wings of moderate length, broad, rounded, the first quill extremely small, the third and fourth longest; tail of moderate length, slightly emarginate.

1. *Turdus Merula.* Black~~bird~~. Male with the plumage black, the bill yellow, the feet dusky. Female deep brown above, lighter beneath, the bill and feet dusky.

2. *Turdus torquatus.* Ring ~~Ouzel~~. Male with the plumage blackish-brown, the fore-part of the breast white. Female similar, the white of the breast tinged with brown.

3. *Turdus pilaris.* Fieldfare. Head grey, fore part of

back chestnut, fore-neck and sides reddish-yellow, spotted with brownish-black.

4. *Turdus viscivorus.* Missel Thrush. Upper parts light greyish-brown, forehead grey, rump tinged with ochre-yellow, secondary coverts and tail-feathers tipped with greyish-white; lower parts yellowish-white, spotted with black.

5. *Turdus musicus.* ~~Mavis.~~ Song Thrush. Upper parts yellowish-brown, head tinged with red, secondary coverts tipped with reddish-yellow, fore part of neck and breast yellowish, with triangular brownish-black spots, lower wing-coverts reddish-yellow.

6. *Turdus iliacus.* Redwing. Upper parts deep hair-brown tinged with olive, a large whitish band over the eye, secondary coverts tipped with greyish-white; fore part of neck and breast white, with longitudinal streaks of blackish brown and pale brown, part of sides and lower wing coverts light red.

7. *Turdus* ~~*varius.*~~ ~~Variegated~~ White's, Whites Thrush. Upper parts yellowish-brown, lighter behind, lunulated with brownish-black; sides and lower fore part of the neck, breast, and sides, yellowish-white, lunulated with brownish-black.

8. *Turdus aurigaster.* Gold-vented Thrush.

~~Genus II. Turdus.~~

Genus II. Petrocincla. Rock-Thrush.

Genus III. Accentor. &c.

From p. 542. Vol. III.
Family IV. Oriolinæ.

Linn.

Genus I. ORIOLUS. ORIOLE.

Bill rather long, stout, nearly straight, rather broad at the base, compressed towards the end; the upper mandible having the dorsal line slightly arched, the ridge narrow, the sides flat and sloping at the base, slightly convex and more inclined towards the end, the edges sharp, with a slight notch close to the small, slightly decurved tip; the lower mandible with the angle of moderate length and rather narrow, the sides nearly erect, the edges sharp, the dorsal line nearly straight.

Mouth of moderate width. Tongue slender, emarginate and papillate at the base, thin and horny towards the tip, which is bifid.

Eyes of moderate size. Eyelids feathered. Nostrils oblong, in the anterior part of the large nasal membrane, which is feathered.

Head oblong, of moderate size, the forehead slightly rounded. Neck rather short. Body ovate, compact. Legs rather strong, short: tarsus short, compressed, covered anteriorly with seven large scutella, posteriorly with two plates united at a very acute angle, and several transverse rugæ below. Toes of moderate size, covered above with a few large scutella, papillate beneath; the first stout, of about the same length as the second, the fourth a little longer, united at the base to the third, which is considerably longer. Claws of moderate length, arched, compressed, laterally grooved, acute; that of the hind toe much stronger.

Plumage generally blended, the feathers oblong and rounded. Short bristles at the base of the bill. Wings rather long, of nineteen quills; the first primary very short, being scarcely half the length of the third, which is longest; the second shorter than the fourth. The secondary quills of moderate length, broad and rounded. Tail rather long, straight, slightly rounded, of twelve rather broad, rounded feathers.

In the systems of Linnæus and Latham, the genus Oriolus was composed of a number of birds having very little affinity to each other, but which Daudin, Vieillot, and others, have separated into several genera. The American species have been referred to the genera *Cassicus*, *Icterus*, *Xanthornus*, and some others, which are in a manner intermediate between the Sturninæ and the Conirostres; and the genus as now restricted comprehends only those species, all belonging to the Old Continent, which bear a strong resemblance in form to the Golden Oriole, *Oriolus Galbula*, the only species that visits Europe. It appears to me strange that the Orioles should ever have been associated with such birds as the Icteri and Quiscali, to which they seem to have very little affinity. Their short tarsi and broad toes appear to approximate them to the Rollers, and both these genera seem to be allied in the form of their bill to the Flycatchers and Shrikes. ~~But upon the whole, the Orioles are probably more allied to the Thrushes and Threnmaphilinæ, than to any other groups.~~

Linn.

1. ORIOLUS GALBULA. GOLDEN ORIOLE.

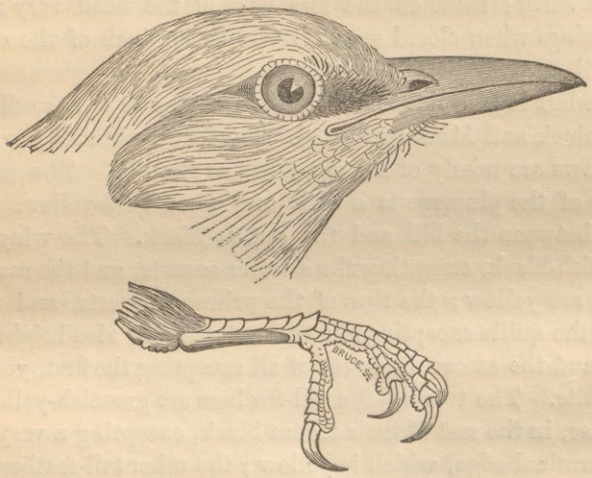


FIG. 124.

Oriolus Galbula. Linn. Syst. Nat. I. 160.
Oriolus Galbula. Lath. Ind. Orn. I. 186.
Golden Oriole. Mont. Orn. Dict.
Loriot. Oriolus Galbula. Temm. Man. d'Orn. I. 129.
Golden Oriole. Oriolus Galbula. Selb. Illustr. I. 176.
Oriolus Galbula. Golden Oriole. Jen. Brit. Vert. An. 102.

Male with the plumage bright-yellow, the wings black, the primary coverts, and all the quills excepting the first and second tipped with yellow; the tail-feathers black, tipped with yellow, the space of the latter colour enlarging from the medial to the lateral feathers; the loral space black. Female greenish-yellow above, yellowish-white beneath, marked with longitudinal dusky lines; the wings and tail brown, tipped as in the male with yellow.

MALE.—This beautiful bird is about the size of the Black Thrush, *Turdus Merula*, which it also resembles in form, al-

though its tail and feet are shorter, and its wings proportionally longer. Indeed, its resemblance to the Thrushes is such that several authors have named it the Golden Thrush. As it agrees in every particular with the generic character above given, it is unnecessary here to repeat the details already presented.

The plumage is blended, the feathers being oblong, with disunited barbs; those on the fore part of the head very short. The wings when closed reach to within an inch of the end of the tail.

The bill is of a light-brownish red. The iris, according to Temminck and Montagu, is red. The feet are bluish-grey, and the claws are nearly of the same tint as the bill. The general colour of the plumage is a rich and pure gold-yellow. The space between the bill and the eye is black. The wings are brownish-black, excepting the smaller coverts, and the margin, which are yellow; the tips of the primary coverts, and those of all the quills excepting the two outer, being also bright yellow; and the external margin of all excepting the first, yellowish-white. The two middle tail-feathers are greenish-yellow at the base, in the rest of their extent black, excepting a very narrow terminal edge, which is yellow; the other tail-feathers are black, with a yellow terminal space enlarging on the outer.

Length to end of tail $9\frac{1}{2}$ inches; wing from flexure $6\frac{2}{12}$; tail $3\frac{3}{12}$; bill along the ridge $1\frac{1}{12}$, along the edge of lower mandible $1\frac{3}{12}$; tarsus 1; first toe $\frac{1}{2}$, its claw $\frac{5}{12}$; second toe $\frac{1}{2}$, its claw $\frac{3\frac{1}{2}}{12}$; third toe $\frac{9}{12}$, its claw $\frac{5}{12}$; fourth toe $\frac{8}{12}$, its claw $\frac{4}{12}$.

Female.—The female is somewhat less than the male. The bill and feet are similarly coloured. The plumage of the upper parts is yellowish-green, the forehead brighter, and the upper tail-coverts greenish-yellow. The fore part of the neck is pale yellowish-grey, its sides greenish-yellow, the breast white, the sides and lower tail-coverts bright yellow. The throat is marked with longitudinal pale-brown lines, the breast with larger lines of brownish-black. The wings are brown, their edges greenish-yellow, the tips of the quills, except the two outer, and of the primary coverts pale yellow. The tail is brownish-black, the terminal yellow spaces of much less extent than in the male.

Length to end of tail $9\frac{2}{12}$; wing from flexure 6; tail $3\frac{3}{12}$; bill $1\frac{1}{12}$.

Habits.—The Golden Oriole, the only species of the genus that is ever seen in Europe, is said to arrive in Spain, France, and Italy about the end of spring, and it is not uncommon in many parts of Germany, but is rare in the northern countries, and in England is not a regular visitant, a few individuals only having been seen there at long intervals, so that it ranks among the accidental stragglers. It is described as preferring low wooded districts, and resorting to the margins of the forests, where it resides chiefly among the lower branches of the large trees, or in the thickets. Its food consists of insects and larvæ, but as the season advances, it feeds on berries and fruits of various kinds, occasionally visiting the gardens and orchards, and showing, like the Blackbird, a preference for cherries. Its manners, however, are not fully detailed by authors, but, judging from its appearance, they are probably similar to those of the larger Thrushes. As its wings are long and broad, its flight must be easy and sustained; and the form of its feet shows that it is equally adapted for hopping on the ground, and for gliding among the branches, although the shortness of the tarsi, and the disparity of the second and third toes indicate a greater aptitude for the latter mode of progression. It is a solitary bird, shy, and difficult to be approached.

Its nest is described by authors as of an oblong form, shaped like a purse, having its aperture above, and suspended from a forked branch, generally towards the top of a tree. It is composed externally of long straws interwoven, internally of mosses and lichens, with a lining of grass, and sometimes wool. Mr Yarrell, however, in his History of British Birds, p. 214, states that it is "rather flat and saucer-shaped, generally placed in the horizontal fork of a bough of a tree, to both branches of which it is firmly attached," and composed of wool and long slender stems of grass curiously interwoven. The eggs, four or five in number, are of a regular oval form, smooth, an inch and two-twelfths in length, ten-twelfths in breadth, white, with a few brownish-black spots, among which are frequently

others of a paler tint. It is said to be very bold in defending its nest against intruders, and to manifest great attachment to its young.

The Golden Oriole has occurred in several counties in England, as well as in a few instances in Ireland; but, I believe, no authentic case of its occurrence in Scotland has been recorded. The birds in the museum of the University of Edinburgh, mentioned by Mr Selby as having furnished subjects for his drawings, and as having been shot on the Pentland Hills, were, to my knowledge, brought from France by the late Mr Wilson, janitor of the University.

Young.—In its first plumage this bird is of a dusky yellowish-grey tint on the upper parts, each feather having the central part olive-brown. The lower parts are yellowish-white, each feather with a central line of brown; the sides and lower tail-coverts bright yellow; the wings and tail brown, marked with yellow, as in the adult, but of less extent. The male is easily distinguished from the female by its lighter colour.

The young are said to be difficult to rear, and not to thrive well in captivity, otherwise creatures so beautiful would no doubt be great favourites as cage-birds, although their natural notes are loud and harsh, and their song unpleasant.

Remarks.—The species most nearly allied to the Golden Oriole, Oriolus Galbula, are the Mango Oriole, *Oriolus Mango*, the Yellow Oriole, *Oriolus aureus*, the Chinese Oriole, *Oriolus sinensis*, and the Black-headed Oriole, *Oriolus melanocephalus*. Whether the first of these be really distinct, I can scarcely venture to affirm. It is somewhat smaller, its wings proportionally shorter, its bill larger, but the colouring is precisely similar, only there is a small black spot behind the eye, in addition to that on the loral space.

Order IV. Rasitatoria. p. 9. vol. III.

Linnæus

Genus I. TURDUS. THRUSH.

from p. 44.

Bill of moderate size, straight, slightly ascending, a little broader than high at the base, compressed towards the end: upper mandible with its dorsal outline slightly arched, the ridge rather narrow but convex, the sides convex, the edges sharp and slightly overlapping, with an obscure notch close to the rather obtuse narrow tip; lower mandible straight, the angle medial and narrow, the crura having the sides sloping outwards, the dorsal line slightly convex, the ridge narrow and rounded, the sides convex, the edges sharp and inflected, the tip narrow and rather acute; the gape-line nearly straight.

The mouth rather narrow; the upper mandible internally narrow, with a central prominent line; the lower more deeply concave, with a central line; the palate nearly flat, with two longitudinal ridges. The posterior aperture of the nares oblongo-linear, edged with small papillæ, the lateral spaces slightly inclined, and terminating behind in a flap beset with acicular papillæ. Tongue slightly extensile, sagittate and papillate at the base, tapering, slender, concave above, its edges thin, and beset with minute bristles directed forwards, the tip slit. The œsophagus, Pl. XIV, Fig. 2, rather narrow, of nearly uniform diameter; the proventriculus oblong, with short cylindrical glandules. The stomach a gizzard of moderate strength, broadly oblong, compressed; its muscular coat rather thick, with the lateral and lower muscles distinct, and inserted into two rather large tendons, of which the right is much larger; the middle coat thin; the inner or cuticular dense, tough, with longitudinal rugæ. Intestine of moderate length, its duodenal portion wider; the cœca very small, and cylindrical; the rectum very short, with a globular dilatation.

Nostrils elliptical, direct, in the lower and fore part of the nasal membrane, which is covered with short feathers. Eyes of moderate size; the eyelids feathered, their edges bare and crenate. External aperture of the ear rather large, and roundish.

The general form varies a little, but is usually rather full, the body ovate and compact; the neck of ordinary length; the head oblong, rather compressed, and of moderate size. The legs are of moderate length, and rather slender; tarsus compressed, covered anteriorly with one long plate above and four small scutella below, laterally with two long plates meeting behind at a very acute angle, and several transverse scales below. Toes moderate, covered above with long scutella, papillar beneath; the first, second, and fourth nearly equal, the third much longer, the third and fourth slightly connected at the base. Claws of moderate length, slender, arched, compressed, laterally grooved, acute; that of the hind toe considerably larger.

Plumage ordinary, rather blended, slightly glossed, the feathers generally rounded, and having a small plumule of few barbs; the frontal feathers short and rounded. There is a row of short bristle-feathers along the basal margin of the upper mandible; and all the feathers about the base of the bill are terminated by bristly points. Wings of ordinary length, or longish, broad, semi-ovate, rounded; primaries ten, tapering to a rounded point, the third, fourth, and fifth cut out on the outer web; the first extremely small, the third and fourth longest; secondaries eight, long, broad, broadly rounded, with a minute tip. Tail of ordinary length, or rather long, slightly emarginate, even, or a little rounded, of twelve rather narrow feathers, which suddenly taper to a point.

The affinities of this genus are numerous, and many of them obvious. ~~*Phrenimaphilus, Oriolus, Alauda, Erythaca, Saxicola,* and *Lanius*, are all in various degrees allied to it, as are several other genera; and~~ certain species, so, manifest a more decided resemblance to particular genera than others. Thus, the Fieldfare, in its flight, in the form of its bill, and in some of its habits, resembles the Sky Lark; and the Blackbird in its attitudes, motions, form, and cry presents some vague analogy to the Magpie.

The Thrushes which occur in Britain vary from eight to eleven inches in length. Some of them frequent the open fields, others the gardens and hedges. Their food consists of mollusca, insects, larvæ, worms, berries, fruits, and seeds of

various kinds. They are in general shy and suspicious of man, although the Song Thrush and Blackbird are not remarkable for these qualities. Their mode of progression on the ground is by leaping, and they have a peculiar manner of looking for their food, but their flight varies according to the species. All are noted for their vocal powers, but especially the Song Thrush and Blackbird. Of the ~~seven~~ species three are resident, two are winter visitants, one resides with us in summer only, and ~~one is a~~ two are very rare and accidental visitant. Three are gregarious, and three unsocial. The flesh of all is savoury and delicate, and the gregarious species are frequently shot to be eaten. It has been asserted by Montagu, that the Fieldfare "roosts on the ground, and rarely perches for that purpose;" but this assertion has not been quite confirmed by the observation of others, although, if correct, the fact would afford an additional manifestation of the affinity which this bird has to the Lark. So far as I have seen, Fieldfares and Redwings betake themselves to woods or tall trees in the evening; nor are they ever observed to *crouch* on the ground, like the Lark, the Partridge, and other birds that rest there by night. The Blackbird and Song Thrush however often rest on the ground, but always under the shelter of bushes or stones, and not in an open field. The mode in which the Thrushes procure worms and larvæ, although not peculiar, is very remarkable. The bird stands perfectly still, in what may be called the attitude of observation, the wings slightly drooping, the tail horizontal, or a little raised, the head also a little elevated. The moment it observes symptoms of life, it hops rapidly up to the place. If the worm be above ground, it picks it up instantly; but if below the surface, it digs up the soil with its bill, using the utmost expedition. When it has laid hold of the worm, it either drags it up slowly, so as not to break it, or nips off a piece, which it swallows, and continues its attack until the whole is procured. The Robin is the only British bird that I have observed employing the same means of procuring its prey, although it seldom, I believe, attacks the earth-worm, which to most of our Thrushes is a principal article of food.

Some authors have generically separated the plain-coloured

from the spotted Thrushes, giving the former the name of *Merula*, the latter that of *Turdus*, and distinguishing these groups moreover by differences in the length of the tail, and others of an equally unsatisfactory nature. Others, placing both groups in one genus, have chosen to designate it by the name of *Merula*, in preference to that of *Turdus*, alleging that the former name was first employed by Ray. The latter, however, I retain, it being that used by Linnæus, who was the first naturalist who had any rational idea of generic and specific names. As to Ray, his notions were so vague that he often employed several names for what he seems to have conceived to be the same genus, as did Brisson, and all others, until a better method was invented by Linnæus, whose genus Turdus may with propriety be retained, after separating from it the species that belong to other groups.

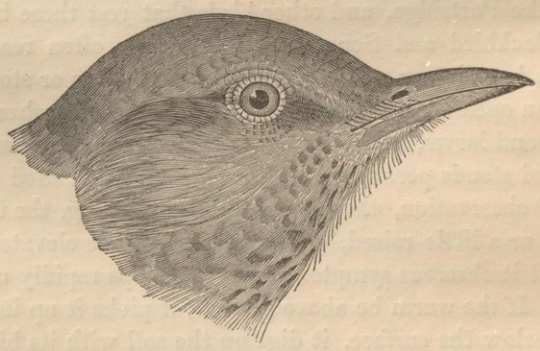


Fig. 125. Young Female Blackbird.

Linn.

1. TURDUS MERULA. THE BLACK THRUSH, ~~OR BLACKBIRD~~.

Blackbird. OUZEL. GARDEN OUZEL. MERLE. LON DUBH.

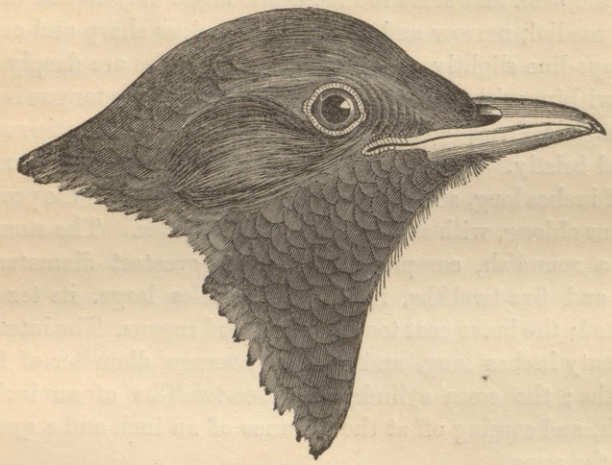


FIG. 126.

Turdus Merula. Linn. Syst. Nat. I. 295.
Turdus Merula. Lath. Ind. Orn. I. 340.
Blackbird. Mont. Orn. Dict.
Merle noir. Turdus Merula. Temm. Man. d'Orn. I. 168. III. 90.
Blackbird. Merula vulgaris. Selb. Illustr. I. 167.
Turdus Merula. Blackbird. Jen. Brit. Vert. An. 101.

Male with the plumage black, the bill yellow, the feet dusky. Female with the plumage deep brown above, lighter beneath, the throat and fore-neck pale brown, streaked with darker, the bill and feet dusky. Young dusky-brown above, with dull yellowish streaks; pale yellowish-brown, spotted with dusky, beneath.

MALE.—The "Blackbird" is perhaps the most elegant of our British Thrushes, although the Mountain Ouzel and the Field-fare are nearly of the same form. The body is ovate, nearly as broad as deep; the neck of ordinary length; the head ob-

long; the legs rather strong; the wings of moderate length; and the tail long. The bill is of moderate size, compressed towards the end; the upper mandible with its outline arcuato-declinate, the ridge rather narrow and rounded, the sides convex, the edges direct and sharp, with a slight notch close to the narrow, rounded, sharp-edged tip; the lower mandible with the back and sides rounded, the angle or junction of the crura medial, narrow and rounded, the edges sharp and erect; the gape-line slightly arched. Both mandibles are deeply concave within, with a prominent medial line. The tongue is narrow, sagittate with long conical papillæ at the base, the tip rounded and bristly. The œsophagus, Pl. XIV. Fig. 2, is four and a half inches long, and of nearly uniform diameter; the proventriculus oblong, with short cylindrical glandules. The stomach is of a roundish, compressed form, its greatest diameter an inch and five-twelfths, its lateral muscles large, its tendons radiated; the inner coat tough, dense, and rugous. The intestine is twenty inches long, and has an average diameter of four-twelfths; the cœca cylindrical, three-twelfths of an inch in length, and coming off at the distance of an inch and a quarter from the anus.

The nostrils are of moderate size, two-twelfths of an inch long, elliptical, partially concealed by the feathers. The aperture of the eye is two-twelfths and a quarter in diameter, that of the ear four-twelfths. The legs are of ordinary length, rather strong; the tarsus compressed, covered anteriorly with a long undivided plate above, and three large scutella below, posteriorly with two undivided plates meeting at an acute angle, inferiorly rugoso-granulate. The toes are of moderate length, rather strong; the second and fourth about equal, the first large, the third considerably longer; the third attached to the fourth as far as the second joint; the first with eight, the second with ten, the third with thirteen, the fourth with eleven scutella. The claws are long, moderately arched, compressed, obscurely grooved on the sides, tapering, acute.

The plumage is full, soft, and glossy, the feathers oblong, rounded, with the barbs discrete at the end, and a very slender plumule, composed of a few long barbs. The frontal feathers

are short, those on the nasal membrane roundish. There is a row of small bristle-feathers along the base of the upper mandible. The wings are broad, semi-ovate, the primaries considerably longer than the secondaries; the first quill extremely small and narrow; the fourth longest, the fifth scarcely shorter, the third almost as long, the second a little shorter than the third; the other primaries slowly graduated; the third, fourth, fifth, and sixth, cut out on the outer web towards the end. The secondaries are slightly incurvate, broadly rounded, with a minute acumen. The wings when closed extend one-third down the tail, which is long, nearly straight, slightly rounded, the feathers broad, rounded and acuminate.

The bill is bright orange, as are the mouth, tongue, and margins of the eyelids. The irides are hazel; the feet and claws dusky-brown, the heel and soles yellow. The general colour of the plumage is deep black, pure or slightly tinged with brown, the lower parts as dark as the upper. The primary quills are of a lighter tint, and obscurely edged with brown. The central part of the concealed portion of each feather is light grey.

Length to end of tail $10\frac{3}{4}$; extent of wings 16; bill along the ridge $\frac{1}{1}\frac{0}{2}$, along the edge of lower mandible $1\frac{2}{1}\frac{1}{2}$; wing from flexure $5\frac{5}{1}\frac{}{2}$; tail $4\frac{1}{2}$; tarsus $1\frac{3}{1}\frac{}{2}$; first toe $\frac{6}{1}\frac{}{2}$, its claw $\frac{6}{1}\frac{}{2}$; second toe $\frac{8}{1}\frac{}{2}$; its claw $\frac{4}{1}\frac{1}{2}$; third toe 1, its claw $\frac{5}{1}\frac{}{2}$; fourth toe $\frac{8}{1}\frac{1}{2}$, its claw $\frac{4}{1}\frac{1}{2}$.

Female.—The female differs considerably in colour. The bill is dark-brown, paler towards the edges, the skin at the corner orange; the edges of the eyelids greenish-orange, the irides hazel; the feet dusky-brown, the claws darker. The general colour of the plumage is deep brown above, the quills darker, the tail brownish-black; the lower parts lighter, the throat brownish-white, the fore-neck dull light reddish-brown, with obscure dusky triangular spots; the central part of the concealed portion of each feather light-grey.

Length to end of tail 10 inches; extent of wings 15; wing from flexure $5\frac{4}{1}\frac{}{2}$; tail $4\frac{1}{2}$; bill along the ridge $\frac{9}{1}\frac{}{2}$; tarsus $1\frac{3}{1}\frac{}{2}$; middle toe and claw $1\frac{4}{1}\frac{}{2}$.

Variations.—In the adult males slight variations are observed in the tints of the plumage, the lower parts being sometimes tinged with grey or brown, and the margins of the quills brown. In the females, the upper parts are sometimes of a lighter brown, the forehead tinged with red, and the fore part of the neck brownish-red; but this part is always marked with oblongo-triangular dark spots at the tips of the feathers, in which respect the female Blackbird manifests an affinity to the spotted species of the same genus. White, cream-coloured, or variegated individuals are sometimes met with. In May 1832, Mr Carfrae brought me an adult female patched with white, some of the quills being also of that colour. A young male in its second plumage, in my collection, has the lower parts variegated with grey and greyish-brown feathers. Mr Stevenson has a male which is white, with black feathers interspersed; the quills and tail black, except two feathers of the latter, and one of the former, the bill pale-yellow, the feet dusky, curiously variegated with pale-yellow.

The changes caused by the action of the weather are not very remarkable. The bill continues of the same colour, but the feet are more tinged with yellowish-brown in summer. The quills and tail-feathers lose their minute tips, the wings become much browner, and the glossy black of the males is considerably tarnished, while the fore-neck of the females fades to brownish-grey. The alterations, however, are not such as to render necessary a formal description of the species in its summer plumage.

Habits.—The Blackbird, which is one of the most admired of our native songsters, is a permanent resident, and occurs in almost all parts of England and Scotland, although it prefers the more cultivated districts, and is rarely met with in the central and more elevated tracts. Being, properly speaking, an inhabitant of bushy places and woods, it does not breed in the northern and more remote Hebrides, nor in districts of the mainland destitute of sylvan vegetation.

In winter it frequents the neighbourhood of houses and towns, resorting to woods, hedges, and gardens, and generally keeping

in the shelter of trees or bushes. At this season its food consists principally of snails, especially Helix aspersa and H. nemoralis, the shells of which it breaks by raising them in its bill, and dashing them against a stone or other hard surface. It also occasionally breaks them open by pecking against the spire, in which the shell is much thinner. Like many other birds, however, it has a great range of food. Thus, having opened five individuals, I found in the stomach of one a great quantity of seeds and husks of gramineæ, including wheat and oats; in that of another, coleopterous insects; in that of a third, coleoptera, and seeds of various kinds; in that of the fourth, mollusca, and fragments of shells; in that of the fifth, seeds, mollusca, and a few grains of gravel. Earthworms, larvæ, berries, and seeds of various kinds I have also observed in the stomachs of numerous individuals which I have opened.

It is amusing to observe a Blackbird searching for food on the smooth green of a garden, which one may easily do from the window without being noticed. In December 1832 I watched one in order to note its motions. After looking quietly at a particular spot for some time, it hopped up, began to peck the ground with great energy, and after some exertion, succeeded in dragging out a worm of moderate size, which it immediately threw on the ground. It then pecked at the worm for nearly a minute, and, beginning at one end, separated by a sudden stroke a small portion, which it swallowed. In this manner it proceeded until it had devoured the whole, not swallowing at any time more than a small fragment. It then hopped about, looking now and then attentively at a certain spot, and at length began to dig vehemently for another worm, which it soon procured. This was the first time that I had closely watched a Blackbird while searching for worms; but I have since had repeated opportunities of convincing myself that it always proceeds in the same manner, never swallowing an entire worm unless it happen to be extremely small, and cutting the very large ones into a great number of pieces.

"Blackbirds with us," writes my friend Mr Archibald Hepburn of Whittingham, in East Lothian, "greedily devour slugs, worms, and different sorts of berries and other fruits. They seldom or never trust themselves free from the shelter of

the hedge or bush; but I have seen Song Thrushes feeding in the middle of a field nine acres in extent. They are also much wilder than the Thrushes. If you wish to shoot one in a hedge row, unless you succeed at once, he will lead you a wild-goose chase, and then fly off, wishing you better sport farther off. Blackbirds seldom mob a cat unless when they have young. When gooseberries are in season, you may see them feeding from sunrise to sunset, except when they betake themselves to the pond to wash. In the winter they disperse over the country, feeding on the different wild fruits in the hedges, and on slugs and worms in the pastures. When hard-pressed for food during a snow-storm, they frequent the stack-yard. The female sits thirteen days, the male singing till the young are hatched, after which he is seldom heard till the labours of nidification again commence. On the 18th of October I heard a Blackbird sing, although in a very indistinct manner; but previous to this, the last time I heard either this species or the Thrush, was about the middle of July."

The sides of hedges and walls are favourite places of resort, for there it readily procures worms and snails. In hard weather it often eats the berries of the hawthorn, which it swallows whole, and betakes itself to the corn-yards, where it picks up seeds chiefly on the ground. When searching for food, it hops or leaps with great alacrity, keeping its tail a little raised, and its wings loose; and when perched on a tree, twig, or wall, it generally elevates its tail, unless disposed to doze, in which case it draws in its neck, ruffles its plumage, tucks up its wings, and allows the tail to droop. When disturbed, it flies off uttering a loud chuckling noise, which, although clear and shrill, reminds you of the chatter of the magpie; and you may pursue it from one part of a hedge to another, until you obtain it, for it seldom shifts to a great distance. Although thus easily procured, it is yet decidedly shy, and in this respect differs greatly from the Song Thrush, which imagines itself secure at a very short distance.

The flight of the Blackbird over an open space is steady, without undulations; but along the hedges is wavering and fitful, and the bird suddenly darts into the place which it selects, and instantly settles. During the breeding season its

flight is peculiar, for then the female especially moves through the air as if by starts, performing a single flap, followed by a considerable interval, and then continuing its course. The Missel Thrush, the Fieldfare, and the Redwing, frequently take long flights, and are often seen advancing at the height of several hundred yards; but the Blackbird rarely ventures on a long excursion, but prefers skulking as it were among the hedges and trees. Compared with the Song Thrush, it is a very lively bird, and it is amusing to observe one that has just alighted on a twig, and see how gracefully it bends forward, throws up its tail, jerking it at intervals, depresses and at intervals flaps its wings, and then perhaps flits to another branch, where it performs the same motions, or alights on the wall, hops along, suddenly stops, jerks its tail, flaps its wings, and then commences singing.

Even in severe weather in winter, Blackbirds are not gregarious; and on no occasion have I seen more than three or four together, and that only for a few minutes. Although a male and a female may sometimes associate during that season, it is much more common to find them solitary. Nor does this species cherish the society of any other, though it may be seen in the vicinity of a Song Thrush, a Hedge Chanter, or other small bird. While the Fieldfares and Redwings cover a field in search of food, the Blackbirds very seldom venture amongst them, but prefer the shelter of the fences.

The female is less clamorous than the male, who, on being alarmed or irritated, especially in the breeding season, emits a loud clear chuckling cry, in some degree approaching to the chatter of the magpie, fluttering or flapping its wings, and bending its body forwards at the same time. This remarkable cry, variously modulated by different individuals, sometimes exhibits a slight resemblance to the cackle of a domestic hen after laying; but whether it be the same as that alluded to by a correspondent in the "Naturalist," as similar to the crowing of a cock, and by the editor of that journal as resembling the notes of several varieties of that species, I am unable to determine, not having listened to the individuals mentioned by them. This much however I have observed, not as a singular circumstance, nor even as one common to a few individuals, but as

exhibited at all seasons, at the period of breeding and in the middle of winter, and by very many birds of the species, that the male, on perching, whether on a tree or on the ground, but especially on the former, raises his tail, flutters, it might almost be said, flaps his wings, emits his chuckling cry, and continues balancing himself, or hops along, repeating the notes, which, should he be alarmed, or in anyway excited, are sometimes raised and prolonged so that a person fond of tracing affinities and analogies, might naturally enough liken it to the crowing of a cock. Now, were we to adopt the mode of reasoning followed by some writers, what could appear more evident than that the Thrushes are analogous among the Insessores to the Cocks among the Rasores. The Cocks are arborial and terrestrial, so are the Thrushes; they perch or roost at night, so do the latter; they crow, so does the Blackbird in a way; they have a thick covering of feathers on the rump, so have the Thrushes; they afford very delectable food, so in truth do the Blackbird and all his family. Indeed the analogy is much more clearly made out than three-fourths of Mr Swainson's, and as to the discrepancies, all objects differ more or less from each other. To end all this however let us listen to Another cry of the Blackbird, which resembles the syllable *chink*, several times repeated, and which the male very frequently utters. The female, on the other hand, is always remarkably quiet, and in this respect might be recommended as a model to many females of the Homo nosce-teipsum species, although there can be no reason for denying them a moderate degree of loquacity. How delightful it would be to listen to an exposition of the quinary and circular system from the ruby lips of a lady ornithologist! Indeed if it had been invented by one, I feel assured that I should long ago have become a convert to it; but the pugnative propensity, or whatever else the phrenognomists call the spirit of counteraction, has hitherto prevented me from being deceived by it.

Few persons seek an opportunity of hearing the song of the Blackbird in the early morning before the first rays of the sun shoot across the eastern sky; but many listen to it with delight in the quiet evenings of spring and summer, when the

other songsters, except the Thrush or the Nightingale, are mute, and when its mellow notes come swelling on the ear, shedding a benign influence on every heart not entirely hardened by a habitual disregard of nature. On the 1st of May, 1837, a Blackbird in the garden commenced his song at three in the morning; a fortnight after I heard one as early as half-past two; and in the middle of summer, I have listened to it before going to bed, when the twilight peeped in between the shutters upon the untired student, thus admonished of the propriety of intermitting his labours. The first morning song of the Blackbird is very singular, and altogether different from that of the evening, consisting of repetitions of the same unmusical strain, performed with a harsh screaming voice. It continues for a quarter of an hour or more, and is not again heard until towards sunrise, when it is renewed in a bolder, louder, and more joyous strain. In cold and cloudy weather however, this twilight strain is seldom heard, for then the bird waits until it is full day before it commences its song. Although the Blackbird sings at all times of the day, it is more especially in the mornings and evenings that it pours forth its delightful melodies, which, simple as they are, I am unable to describe in a more effective manner than by characterizing them as loud, rich, mellow, and much surpassing in effect those of any other native bird, excepting the Nightingale, Song Thrush, Blackcap, and Garden Warbler. I have heard individuals singing most fervently in the midst of a heavy thunder storm, when the rain was falling thickly, and the lightning flashing at an alarming rate; and both this species and the Song Thrush seem to regard the summer rains with pleasure. The season at which the Blackbird is in full song commences about the middle of February, and ends about the beginning of August; but in calm and especially warm weather, whether clear or cloudy, it may sometimes be heard in the winter and early spring months. Thus in the uncommonly mild winter of 1837, it was frequently heard in the south of Scotland in December, although the severe frost and snow which happened in January following entirely put an end to its mirth for weeks.

It is not in the wild valley, flanked with birchen slopes, and stretching far away among the craggy hills, that the music of the Blackbird floats upon the evening breeze. There you may listen delighted to the gentle song of the Mavis; but here, in this plain, covered with corn-fields, and skirted with gardens, sit thee down on the green turf by the gliding brook, and mark the little black speck stuck as it were upon the top twig of that tall poplar. It is a Blackbird, for now the sweet strain, loud, but mellowed by distance, comes upon the ear, inspiring pleasant thoughts, and banishing care and sorrow. The bird has evidently learned his part by long practice, for he sings sedately and in the full consciousness of superiority. Ceasing at intervals, he renews the strain, varying it so that although you can trace an occasional repetition of notes, the staves are never precisely the same. You may sit an hour or longer, and yet the song will be continued; and in the neighbouring gardens many rival songsters will sometimes raise their voices at once, or delight you with alternate strains. And now, what is the purpose of all this melody? We can only conjecture that it is the expression of the perfect happiness which the creature is enjoying, when, uncarked by care, conscious of security, and aware of the presence of his mate, he instinctively pours forth his soul in joy and gratitude and love. He does not sing to amuse his mate, as many have supposed, for he often sings in winter, when he is not yet mated; nor does he sing to beguile his solitude, for now he is not solitary; but he sings because all his wants are satisfied, his whole frame glowing with health, and because his Maker has gifted him with the power of uttering sweet sounds.

The Blackbird pairs in February or March, and about the middle of the latter month, or later in the season, according to the temperature or the progress of vegetation, begins to construct its nest, which it places in a bush of any kind, a hawthorn, a laurel, a holly, or a willow, for example, or among ivy, or honeysuckle, or even in a hole in a wall or rock. For the most part however it selects the lower part of a hedge, or a briar or bramble thicket, or the concealment of a fresh young fir or pine. The nest, which is bulky, is composed externally

of stalks of grasses, supported or strengthened by some twigs or stems of herbaceous plants, and interwoven with mosses. This framework, coarsely intertwined, is lined with a thin layer of mud, within which is a more neatly arranged layer of fibrous roots, slender stalks of grasses, decayed leaves, and hypna. The interior is hemispherical, about four inches in breadth at the mouth, and three in depth. The nests however vary considerably as to the materials of which they are composed. In one before me, within a loose mass of grasses, roots, and twigs, is a firm cup composed of blades and stems of soft grasses rudely interwoven and compacted with sandy mud, which has been applied in pellets, and having a thickness of a quarter of an inch. Within this is a shell of about the same thickness, composed of fine fibrous roots and slender grasses well interwoven, especially at the mouth. The diameter within is four inches, the depth two and a half. In another, the mud-cup is formed of fine light-brown earth, mixed with hypna; the inner cup of fine grasses and decayed holly leaves. Its dimensions are the same. The eggs are generally five, or from four to six, pale blueish green, freckled with pale umber, the markings closer towards the larger end, where they sometimes form an obscure ring. They differ in form from very broad to elongated oval, the longest being ~~about~~ an inch and two-twelfths by ten-twelfths, the shortest an inch and half a twelfth by ten-twelfths and a quarter. Generally however they are of a much longer form than those of the Song Thrush. Two broods are commonly reared, the first being abroad towards the end of May, the second by the middle of July. It appears however that sometimes a greater number of broods is reared. Mr Blyth states in the Naturalist, Vol. III, p. 152, that a pair built four successive nests in 1837 upon the island in St James's Park, and succeeded in rearing seventeen young ones, the three first broods consisting of five each, the last of two only; and that another pair which he knew of raised three broods in a garden near his residence.

Mr Weir has favoured me with the following notice respecting a matrimonial union between a Blackbird and a Thrush:—
"That birds in a state of confinement may be induced, by the

solicitations of love, to form alliances with other species of the same genus, or such as resemble them closely in size and habits, when they have not an opportunity of making a choice, is not wonderful; but that they should do so when left to the freedom of their will is rather strange, and what seldom occurs. Mr Russell of Moss-side, my next neighbouring proprietor, and his brother, informed me that about the conclusion of the winter of 1836, a male Blackbird and a female Thrush fed occasionally together within a short distance of their house. At the commencement of spring their attachment to each other appeared more decided; they carried on a course of regular flirtation which eventually ended in matrimony. How the Thrush should have fallen in love with her dusky neighbour is not easily accounted for; but from this it would appear that the females of the feathered tribe have their peculiar notions of beauty as well as those amongst mankind. But, after all, the union of these birds is not so wonderful as that of one of Eve's fair daughters whose complexion is almost as white as the snow, with one of Afric's flat-nosed sons with a countenance black as jet. After a good deal of consultation the pair at length determined to build their nest in a bush of heath which hung over what our Scotch folk denominate a 'farret brae.' I did not see their eggs, as they had four young ones before their nest was discovered, so cunningly had they concealed it. When nearly half fledged, I am sorry to say, that on Sunday forenoon the 3d of July, during the hours of divine service, they were carried off by some most daring nest-hunting youths, notwithstanding all the care that had been taken to preserve them."

The same gentleman has furnished me with an account of a series of observations having reference to the feeding of young birds while yet unfledged. Those which refer to the present species are here given.

"Mr Pennant says, that 'among the feathered tribe all the cares of life fall to the lot of the tender sex.' 'The male does not sing after the young are hatched:'—so says Charles F. Partington, Esquire, in his work the British Cyclopædia, now publishing. And thus writes that distinguished naturalist Colonel Montagu:—'When the callow brood appears the

male is now no more heard in tuneful glee, unless a second brood should force the amorous song again.' If these statements are correct, it will be seen from the following observations that in some of their habits, the Blackbirds in England differ from those in this neighbourhood.

"On Saturday morning the 10th of June 1837, at half-past 2 o'clock, I went into a house made of the branches of trees to watch the Blackbirds whilst they were feeding their brood. It was within nine feet of their nest, which was built in the hole of an old wall. It is a situation for which they and the thrushes seem to have had a strong predilection, for it has been occupied by one or other of them for a number of years successively. The morning was so cold, with a heavy rain and a strong breeze from the east, that I was obliged to wrap myself up in a warm cloak and a Mackintosh waterproof.

"At a quarter past three o'clock in the morning they began to feed their young, which were four in number. From that time until four o'clock the male fed them only once, and sang almost incessantly, whilst the female fed them six times. From four to five o'clock the male fed them six, and the female three times; from five to six o'clock the male fed them four, and the female five times; from six to seven o'clock the male fed them three, and the female five times; and from seven to eight o'clock the male fed them three times. For the last four hours he sang most delightfully, except when he was feeding his tender offspring. As he had induced one of them to fly out after him, I was under the necessity of fixing it into its nest, and this caused some interruption to their feeding. From eight to nine o'clock the male fed them six, and the female seven times; and from nine to ten o'clock the male fed them four, and the female three times. In keeping both the inside and outside of their nest clean they are very particular. A dropping of one of the young birds having fallen to the ground, the male immediately carried it off to some distance, in order, no doubt, to prevent suspicion. From ten to eleven o'clock the male fed them three, and the female two times; from eleven to twelve o'clock the male fed them two, and the female three times; from twelve to one o'clock the male fed them two, and the female four times;

and from one to two o'clock the male fed them twice, and the female thrice.

"Although the hut in which I sat was very closely covered, a Wren having alighted on the ground in pursuit of a fly, no sooner observed one of my legs in motion, than it set up a cry of alarm, on which, in the course of a few seconds, all the birds in the neighbourhood collected to see what was the cause of it. The Blackbirds hopped round about the house again and again, made every effort to peep into the interior, and even alighted on the top of it, within a few inches of my head; but they at length gave up the attempt.

"From two to three o'clock the female fed them twice, and from three to four o'clock the male fed them three, and the female four times.

"That some of the notes of birds are a language which conveys a direct meaning, may, I presume, be inferred from the following interesting occurrence, which took place at half-past three o'clock, an occurrence which I witnessed with the most anxious curiosity, and which I could scarcely have believed had I not seen it. The female having brought a large worm, I am sure more than four inches in length, put it into the mouth of one of the young, and then flew away. Upon her return, having perceived that it was sticking in its throat, she set up the moan of distress. To her assistance her cry immediately brought her partner, who likewise seemed to be aware of the consequences. To force it down they made several efforts, but in this they were unsuccessful. Strange to tell, the male at length discovered the cause of the catastrophe. That part of the worm which by being entangled among the feathers of the breast had been prevented from going down, he carefully disengaged, and held it up with his bill, until after the most unusual efforts, the young bird at length swallowed it. But so much exhausted was it that it remained nearly three hours without moving, and with its eyes shut. The male, having alighted upon a tree a few yards from his nest, poured forth some of his most enchanting notes, a song of rejoicing, no doubt, for the narrow escape from death which one of his family had just made.

"From four to five o'clock the male fed them three, and the female four times; from five to six o'clock the female fed them only twice, and from six to seven o'clock she fed them three times. In the evening the male was so much engaged in singing, that he left the charge of his family almost entirely to his tender-hearted spouse.

"From seven to eight o'clock the male fed them only once, and the female six times; and from eight to twenty minutes before nine o'clock, when they ceased from their mutual labours, the male fed them once, and the female seven times. When I left my retreat, to repair to my more comfortable abode, the male was pouring forth his most charming melody.

"Thus, in the course of a single day, the male fed the young 44, and the female fed them 69 times.

"Before these birds fed their young, they always alighted upon a tree, and looked around them for a few seconds. They sometimes brought in a quantity of worms, and fed the whole of their brood alternately; at other times they carried in only one worm, and gave it to one of them. The worms were very large, owing no doubt to some heavy showers of rain which had fallen on the previous day. This may perhaps be the reason why they fed them so seldom, compared with the number of times that the Thrushes, which I watched a few days before, gave food to their brood. The weather was then very dry, and the worms were considerably smaller.

"The young birds often trimmed their feathers, and stretched out their wings; they also appeared to sleep now and then. With the note of alarm which the feathered tribes set up on the discovery of their enemies, all the different species of the little birds seem to be most intimately acquainted; for no sooner did a beast or a bird of prey make its appearance, than they seemed to be anxiously concerned about the safety of their family. From tree to tree they usually hopped, uttering their doleful lamentations. At one time the Blackbirds were in an unusual state of excitement and terror, and were attended by crowds of their woodland friends. A man and a boy, who were working in my garden, having heard the noise, ran to see what was the cause of it. Upon looking into some branches

lying on the ground, they observed a large weasel stealing slyly along in pursuit of its prey. When they approached it, instead of running off as they expected it to do, it climbed to the top of a larch tree, where it remained until my pointer was brought, when they shook it down, and it made its escape. It is astonishing how very soon the young know this intimation of fear; for I observed that no sooner did the old ones announce it, than they cowered in their nest, and appeared to be in a state of great uneasiness.

"During the whole day, except in two or three instances, the Blackbirds *swallowed all the droppings of their brood.*

"Boghead, 5th January 1838."

This last remarkable circumstance Mr Weir also found to be the case with the Song Thrush, as will be mentioned in the history of that species. It is therefore probable that the habit is common to all the species of this genus, and perhaps to those of others of the Cantatores. Many of my readers may be aware that the Ruminantia, and especially the domestic cow, exhibit a similar propensity, at least when their offspring is very young, for they then lick up the excrement as it passes from the bowels. The value of Mr Weir's observations respecting the feeding of the young of this bird, and of several other species, as related in the present volume, will be appreciated by the intelligent reader, who may be aware that no such patient watchings have ever been instituted by any ornithologist. Appended to the above communication is the following note, which corroborates my own remarks, as already stated:—"On the afternoon of Tuesday the 26th, and on the morning of Thursday the 28th of December 1837, I heard the Blackbirds singing as merrily as if it had been in April or May."

The flesh of the Blackbird is excellent, as indeed is that of all our other species, although, I believe, very seldom used as an article of food. The good people who unhesitatingly feed on innocent lambs, gentle doves, and confiding pullets, look with a kind of abhorrence on the cruel slaughterer of Blackbirds. This, however, it is obvious, is mere selfishness. The bird amuses them with its song, and they are displeased with its

destroyer. Yet, when it has the audacity to appropriate a few cherries, gooseberries, pears, or other fruit, it is very much in the way of receiving some grains of No. 5, from those who would hesitate to shoot it unless in anger. Its fondness of fruit is scarcely counterbalanced by its helping to clear the gardens of snails and worms; but it amply repays all damage by its song, which, in some respects is unrivalled. The period at which it is in prime condition as an article of food, is from the beginning of October to the end of February, unless a snow-storm or hard frost should occur; and even then, it retains its condition much longer than the other Thrushes, excepting the common species, for it still finds a supply of snails under the hedges. The Blackbird is frequently kept in cages, where it sings with nearly as much effect, even in the midst of a crowded city, as in its wild haunts, although the natural associations of cultivated scenery, and gentle emotions, are then entirely lost. Very often, however, it is taught to whistle a tune of some kind, and is thus rendered an object of admiration to those who have little relish for nature, unless they can distort her so as to suit their depraved tastes. The young are easily reared when taken from the nest.

Young.—The bill is dark-brown, paler towards the edges; the iris brown; the feet dusky. The general colour of the plumage above is dusky brown, each feather with a longitudinal median yellowish streak; the wing-coverts tipped with a triangular spot of the same. The lower parts brownish-white, each feather with a terminal spot of brown; the throat and fore-neck whitish, streaked with dusky spots, the breast and sides of the neck tinged with red.

Progress toward Maturity.—After the first moult, which commences in September, and is completed by the end of November, the plumage of the males is in some almost uniformly brownish-black, while in others the fore-neck, and especially the breast, are more or less lunulated with light-brown and grey. In all, the auricular coverts are brownish-black, without light-coloured shafts, which is never the case in the young females. In some the bill is all brownish-black, in others of

that colour, tinged and blotched with dusky orange. The colour of the feathers undergoes no very remarkable change until the next moult, when it becomes darker; but the bill gradually becomes more yellow, so that by the beginning of summer, it is entirely of that colour. In the young females the upper plumage is olive brown, the breast and fore-neck are light umber, the abdomen more or less greyish, the auricular coverts with whitish shafts, and the bill and feet brownish-black.

Remarks.—I have found very considerable differences as to size in individuals, so that several females examined were larger than many of the males, which, however, is not ordinarily the case. The dimensions of a number of specimens are here given :—

	M.	M.	M.	M.	F.	F.	F.	F.
Length	10½	10	10 5/12	11	10	10¼	10½	10¼
Extent	15	15¾	16¼	16½	15	15½	15	14½
Bill	1 0/12	1 0 3/12	7/8		6/8	7/8	1 0/12	1 0/12
Tarsus	1¼	1¼	1 2/3		1 3/8	1¼	1⅓	1⅓
Middle toe	1¼	1¼	1 2/3		1¼	1¼	1⅓	1⅓

The British species most nearly allied to the Blackbird is the "Ring Ouzel," which presents the same form and habits, with slight variations. The only known species of the genus Sericulus of Mr Swainson, which that distinguished naturalist places among his Oriolinæ, is much more closely related to Turdus than to Oriolus. Indeed, his groupings of the Meruliдæ require much of that kind of analysis which is performed with the aid of the scalpel. Were it not for the elongated filaments on the extremity of the tongue of the Sericulus, I do not see why it should not stand simply as a species of Turdus.

Mr Gould, on the other hand, refers it to the Birds of Paradise family, which, I think, it has no affinity.

On referring to the descriptions of the Blackbird by British authors, I find nothing in them to which the reader may be desired to look; and I may be allowed to observe that my own observations, and those of Mr Weir, recorded above, seem to afford a fuller history of the species than any hitherto published in this country at least. Montagu and Mr Selby are both remarkably brief on the subject; but Mr Wood treats it in an interesting

manner, presenting, as he generally does with species which he has carefully studied, a full account of its habits. In one or two cases of no great importance I should be inclined however to dissent from his opinion. Thus, he says, " its strains are not so loud as those of the Garden Thrush ;" but I think they are much louder, although probably they cannot be distinctly heard at so great a distance. I observe that in Loudon's Magazine are several notices respecting the alleged crowing of the Blackbird. The following is so explicit, that I think it leaves no doubt on the subject. " Within half a mile of my residence, there is a Blackbird which crows constantly, and as accurately as the common cock, and nearly as loud ; as it may on a still day be heard at the distance of several hundred yards. When first told of the circumstance, I conjectured that it must have been the work of a cock pheasant concealed in a neighbouring brake ; but, on the assurance that it was nothing more or less than a common Blackbird, I determined to ascertain the fact with my own eyes and ears ; and this day I had the gratification of getting close to it, seated on the top bough of an ash tree, and pursuing with unceasing zeal its usual note. The resemblance to the crow of the domestic cock is so perfect, that more than one in the distance were answering to it, and the little fellow seemed to take delight in competing with its rivals of the dunghill. It occasionally indulged in its usual song, but only for a second or two, and broke off in the middle into its more natural whistle.

" Barton Bouchier, Wold Rectory, near Northampton."

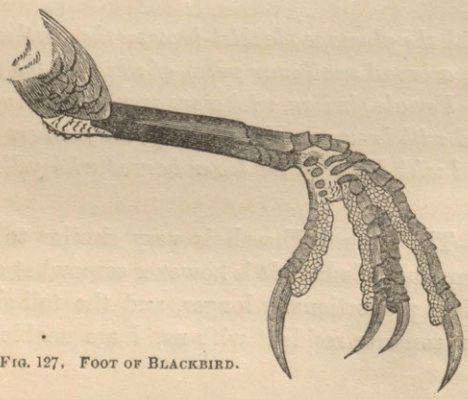


Fig. 127. Foot of Blackbird.

2. TURDUS TORQUATUS. THE RINGED THRUSH, ~~OR RING OUZEL~~.

Ring Ouzel. ROCK OUZEL. TOR OUZEL. MOUNTAIN OUZEL. WHITE-BREASTED BLACKBIRD. MOOR BLACKBIRD. Aiten-chackart.



FIG. 128.

Turdus torquatus. Linn. Syst. Nat. I. 296.
Turdus torquatus. Lath. Ind. Orn. I. 343.
Ring Ouzel. Mont. Orn. Dict.
Merle a plastron. Turdus torquatus. Temm. Man. d'Orn. I. 166.
Ring Ouzel. Merula torquata. Selb. Illustr. I. 169.
Turdus torquatus. Ring Ouzel. Jen. Brit. Vert. An. 101.

Male with the plumage blackish-brown, the feathers margined with grey; a broad semilunar patch of white on the fore part of the breast. Female similar, with more grey on the wings, the white band tinged with brown. Young dusky, the feathers of the upper parts tipped with black, of the lower barred with yellowish-white.

MALE.—The Ringed Thrush is very similar to the Blackbird in form and colour. It is however somewhat stouter, and has the wings proportionally longer, and the tail shorter. As it is only a summer resident with us, I am unable to describe

its winter plumage, which must be of a deeper tint, with the pale margins of the feathers broader.

The bill is almost exactly the same as that of the Blackbird, being merely a little more attenuated at the point, and having the notch more distinct. The tongue is nine-twelfths of an inch in length. The œsophagus, Pl. XIV, Fig. 3, is three inches and a quarter long, with a general diameter of three-twelfths and a quarter. The stomach when empty is oblong, compressed; its muscles distinct and of moderate size; when distended, it is broadly elliptical or roundish, its length being eleven-twelfths and a quarter, its breadth nine and a half twelfths. The tendons are radiated, and the inner coat tough, dense, and slightly rugous. The intestine is very wide and rather short, its general diameter four-twelfths of an inch, its length fifteen inches. Behind or above the duodenal fold, is a second fold on the right side; the intestine then passes up behind the stomach, and descends in a direct course to the anus. The cœca are four-twelfths of an inch long, and one inch from the extremity. The feet are a little larger, but otherwise similar to those of the Blackbird, only that the claws are more curved and blunted. The plumage is rather compact, and slightly glossed, the feathers oblong, rounded, and distinct. There is a row of bristle-feathers along the base of the upper mandible, and all the feathers about the base of the bill are terminated by bristly points. The wing is broad and rounded, and when closed extends to near the middle of the tail. The quills are eighteen; the first extremely small and narrow, the third longest, the fourth almost equal, the second a little shorter than the fourth; the third, fourth, fifth, and sixth cut out on the outer web towards the end. The secondaries are long, broad, and broadly rounded with a minute tip. The tail is long, slightly rounded, the feathers rather broad, rounded, and acuminate.

The bill is yellow; the mouth, basal margins of the mandibles, and edges of the eyelids orange. The feet olive-brown, the claws blackish-brown. The general colour of the plumage is blackish brown, the wings lighter: the outer margins of the quills and first row of wing-coverts ash-grey. The feathers of the lower parts, and wing coverts, margined with whitish-

grey, and the shafts of the lower tail-coverts white. There is a broad semilunar patch of white, curving forwards, at the junction of the neck and breast.

Length to end of tail 11½ inches; extent of wings 19; bill along the ridge $\frac{1}{12}$; along the edge of lower mandible $1\frac{5}{12}$; wing from flexure $5\frac{9}{12}$; tail 4½; tarsus $1\frac{5}{12}$; hind toe $\frac{6}{12}$, its claw $\frac{7}{12}$; second toe $\frac{8}{12}$, its claw $\frac{4}{12}$; third toe $1\frac{1}{12}$, its claw 4½ twelfths; fourth toe 8½ twelfths; its claw $\frac{4}{12}$.

Female.—The female is similar to the male, but of a duller and lighter tint. The bill is brownish-yellow, the base of the upper mandible dusky; the iris brown; the feet as in the male. The colour of the plumage is dark chocolate brown, the wings having the feathers margined with brownish-grey. The patch on the breast is brownish-white, with semilunar marks of pale brown, the tips being of the latter colour. The feathers of the throat, breast, belly, and under part of the tail, are edged with white, and the latter have a white line along the middle.

Length to end of tail 10½; extent of wings 18; bill along the ridge 10½ twelfths; tarsus $1\frac{5}{12}$; middle toe and claw $1\frac{4}{12}$.

Habits.—The Ringed Thrush arrives in the south of Scotland about the middle of April, and departs in the beginning of October. It betakes itself at once to the open, hilly, and mountainous tracts, where it prefers the shelter of the juniper, furze, and heath bushes, to that of woods or thickets. Extremely shy and vigilant, it seldom permits a near approach, but betakes itself to flight on the least alarm. Its manners however are very similar to those of the Blackbird, and as I have studied them with some attention, I am enabled to speak with certainty respecting them. A few individuals are found here and there among the Lammermoor and Pentland Hills, generally in the vicinity of masses of furze and juniper; and I have met with the species in several other parts of Scotland, and even in the island of Skye. Indeed it was there, in the magnificent valley of Coruisk, that I first became practically acquainted with it, having accidentally met with a whole brood accompanied by their parents, in July 1818. There, on

the craggy slopes of the lofty and singularly peaked masses of the Cullin Mountains, among the scattered tufts of heath, they seemed to be flying about in search of food, of which one might imagine they could find but little in such a place. But on the green sward of the Pentlands, where the mole is found nearly to the summits, the Ring Ouzel, besides insects, can readily procure a plentiful supply of earth-worms, for which I have seen it looking out in the manner described under the habits of the preceding species; like which it hops about with great celerity, stands with drooping wings and slightly elevated tail, and digs up its prey with great vigour. It feeds also on insects, testaceous mollusca, and berries of different kinds. The stomach of one which I examined on the 2d October 1837, was filled with berries of the Rowan, *Pyrus aucuparia*. In the statistical account of the Parish of Galashiels in Selkirkshire, the Rev. Nathaniel Paterson states that "the Moor Blackbird, too, has of late years become a most troublesome spoiler of the garden. It is nearly of the same size as the singing Blackbird, but dingy and tuneless,—a daring thief that comes before the windows and carries off a plum nearly as large as itself, shewing by its chatter more of anger than fear when it is disturbed in the work of depredation. Currants, gooseberries, cherries, plums, and the finest wall-fruits are its prey."

which I have frequently seen this bird devouring with great avidity.

Its flight is strong and direct, or with very little undulation. When pursued, it generally flies at once to a considerable distance, and it is only when you come near its nest or young, that it ventures within shooting distance. Like the Song Thrush, it often conceals itself among the bushes, but is much more easily put to flight. When alarmed, it utters a repetition of strong clear notes, like those of the Blackbird, but louder; and its song consists of a few simple, loud and mellow notes.

* In August and September.

A, and closely resembles that of the Fieldfare, but is more rapid.

The nest, according to a person who informs me that he has several times found it, is placed under the shelter of a furze or juniper bush, or on the face of a rough bank, or among fragments of rock. It is composed of coarse grass, plastered internally with mud, and lined with finer grass. The eggs, from four to six, are regularly oval, pale bluish-green, freckled all over with pale brown. The young fully fledged I have had from the Pentland Hills on the 7th of June.

Young.—Bill deep brown, the angle of the mouth orange. Iris dark brown. Feet and claws pale brown. The plumage of the upper parts is brownish black, the feathers tipped with black, and edged with dark reddish-yellow; the outer edges of the secondary quills and their coverts pale yellowish-grey, as are those of the primaries and their coverts, which however are narrower; the smaller wing-coverts with a central streak of yellowish. The outer tail-feathers are edged, and all marginally tipped with pale grey. The lower parts are also brownish-black; the throat and middle part of the fore-neck yellowish white, with which colour the rest of the feathers are barred near the end. The lower tail-coverts have a longitudinal white spot along the shaft, their tip yellowish.

Remarks.—In examining two specimens on the 2d of October, I was surprised to find in both numerous entire seeds, and portions of skin and even pulp of the berries of the Mountain Ash in the intestines, having escaped the action of the gizzard, and the solvent power of the various fluids. This is the only instance in which I have found seeds and large fragments of vegetable matter in the intestine of a bird. A similar observation was made by me on opening a large Tortoise from Trinidad, which had been three months alive in this country, and yet had portions of its intestines filled with Tamarind seeds, which it must have eaten along with the pulp in its native country or on the passage. In both cases, there must have been diseased action. Indeed the Tortoise died of inflammation of the lungs; but no disease was apparent in the Thrushes. The dissemination of plants by birds in this manner has often been alleged or supposed by botanists, probably from analogy, as grains of barley and other cereal plants are sometimes found in the dung of horses; but I have always discredited the notion, because neither among the excrement of birds nor in their intestines, have I ever found entire seeds, this instance excepted.

3. TURDUS PILARIS. THE ~~CHESTNUT-BACKED~~ THRUSH, ~~OR FIELDFARE~~. *Fieldfare*

FELTYFARE. FELDYFAR. FELTYFLIER. GREY THRUSH. LIATH-TROISG.

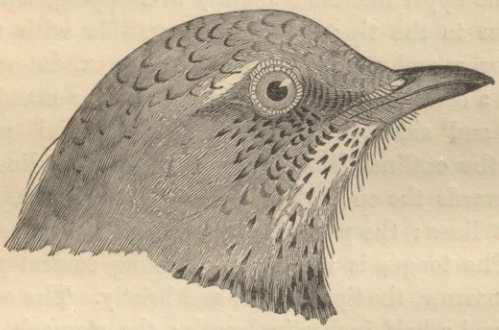


FIG. 129.

Turdus pilaris. Linn. Syst. Nat. I. 291.
Turdus pilaris. Lath. Ind. Orn. I. 330.
Fieldfare. Mont. Orn. Dict.
Merle Litorne. Turdus pilaris. Temm. Man. d'Orn. I. 163.
Fieldfare. Turdus pilaris. Selb. Illustr. I. 160.
Turdus pilaris. Fieldfare. Jen. Brit. Vert. An. 99.

Head, hind-neck and rump, grey; fore part of the back chestnut; space before the eye brownish-black; a whitish line over the eye; fore-neck and sides reddish-yellow, on the former the feathers tipped with a brownish-black triangular spot, on the latter their principal part of that colour.

MALE.—In form and proportions the Fieldfare resembles the Black and Ringed Thrushes; but in colour is more allied to the Missel Thrush and Redwing. It is in fact precisely intermediate between the uniformly coloured species, or Ouzels, and those of which the fore part of the neck is spotted, or the Thrushes, having the form of the one, and the colouring

of the other set, to neither, or to either of which therefore it may be referred according to caprice, while according to nature it is the connecting link of both. It is a rather stout bird, to which the length of the wings and tail impart a considerable degree of elegance.

The bill is of moderate length and size, slightly ascending, a little broader than deep at the base, where it is pentagonal, compressed towards the end, acute; the edges sharp and direct, those of the upper mandible slightly overlapping, with a small notch close to the tip; the upper mandible with the ridge rather narrow and rounded, the sides convex, internally concave with a central prominent line; the lower mandible with the back and sides rounded, the angle medial, narrowish, rounded, the outline slightly convex; the gape-line slightly curved towards the end. The palate is nearly flat, with two prominent lines; the posterior aperture of the nares oblongo-linear. The tongue is sagittate with long conical papillæ at the base, narrow, the tip rounded and bristly. The œsophagus is three and a half inches in length; the stomach roundish, compressed, an inch and four-twelfths in its greatest diameter; the intestine seventeen inches long; the cœca three-twelfths and a half in length, and at the distance of an inch and a quarter from the anus.

The nostrils are elliptical, direct, two-twelfths long, with a narrow operculum, exposed, in the fore part of the nasal membrane. The eyes are of moderate size, their aperture two-twelfths and a quarter in diameter. The ear is large, its aperture four-twelfths across. The legs are of ordinary length, rather strong, the tarsus compressed, covered anteriorly with a long undivided plate above, and four scutella below, posteriorly with two plates meeting at a very acute angle, inferiorly rugoso-granulate. The toes are moderately stout; the first with eight, the second with ten, the third with thirteen, the fourth with eleven scutella. The claws are of moderate length, compressed, laterally grooved, slightly arched, acute.

The plumage is rather blended, soft, and slightly glossed; the feathers oblong, rounded, with the barbs discrete at the end, and a very slender plumule composed of a few long filaments.

There is a row of small bristle-feathers along the base of the upper mandible. A few very slender undivided filaments project from among the feathers of the occipital region, whence the specific name *pilaris*, or hairy; but these filaments are not peculiar to this species, being equally conspicuous in the Missel Thrush and others, nor even to the genus, as they are seen in the Redbreast and many small birds besides. The wings are long, broad, semi-ovate, with nineteen quills; the primaries rounded, the secondaries truncato-rotundate, with a minute acumen; the first quill extremely small and narrow, the third longest, the fourth next, and scarcely longer than the second; the third, fourth, and fifth cut out on the outer web towards the end. The wings when closed reach to about the middle of the tail-feathers. The tail is long, nearly even, the feathers narrow, rounded and acuminate.

The bill is orange at the base, brownish-black at the end, with a larger space of the lower mandible of the former colour; the inside of the mouth also orange, the edges of the eyelids yellow, the iris brown, the feet and claws dusky. The head, cheeks, and hind-neck are ash-grey, the forehead slightly tinged with brown, and most of the feathers on the upper part of the head having a central dusky streak. The anterior half of the back and the wing-coverts are chestnut brown, the posterior half shaded into ash-grey. The wing-coverts are greyish-brown, edged with paler, the primary coverts slightly tipped with grey; the alula, primary-coverts, and quills, greyish-black, margined with pale grey, the secondaries, however, having the greater part of their outer webs brown. The tail is of a deeper black, the lateral feathers greyish toward the end. The fore-neck and breast are light yellowish red, marked with elongated triangular brownish-black spots; the sides paler and marked with larger broadly rounded acuminate spots; the middle of the breast and belly greyish-white, tinged with red; the lower tail-coverts white, marked on either side with dusky. The lower wing-coverts and axillar feathers pure white, and conspicuous when the bird is on wing.

Length to end of tail $10\frac{3}{4}$; extent of wings $17\frac{1}{2}$; bill along the back $1\frac{9}{12}$, along the edge of lower mandible $1\frac{5}{12}$; wing from

flexure $5\frac{3}{4}$; tail 4; tarsus $1\frac{1}{4}$; hind toe $\frac{5}{12}$, its claw $5\frac{1}{2}$ twelfths; second toe $6\frac{1}{2}$ twelfths, its claw $\frac{5}{12}$; third toe $\frac{11}{12}$, its claw $4\frac{1}{2}$ twelfths; fourth toe $6\frac{1}{2}$ twelfths, its claw $\frac{5}{12}$.

Female.—The female differs from the male only in having the head more tinged with brown, the throat paler, the form somewhat less robust, and the bill a little smaller and more dusky; but these differences are very insignificant, and it is impossible to distinguish with certainty a male from a female without dissection.

Length to end of tail $10\frac{1}{2}$; extent of wings $16\frac{1}{2}$; bill along the ridge $\frac{8}{12}$; tarsus $1\frac{1}{4}$; middle toe and claw $1\frac{1}{4}$.

Variations.—Slight differences as to size and colouring are observed, and albino individuals have been met with, as in the other species. In the collection of Mr Stevenson, Edinburgh, is a cream-coloured individual, with pale reddish markings on the lower parts. The birds arrive in this country in full plumage, as above described, and depart before any remarkable change has taken place beyond the wearing of the tips of the feathers.

Habits.—About the end of October, sometimes in the beginning of November, the Fieldfares make their appearance in the northern and eastern parts of Britain, where some of them remain all the winter and spring, while others disperse over the country. In the wooded parts they seem to rest at night on tall trees, at least I have seen them so roosted after sunset; but Montagu affirms that they repose on the ground, which may be the case, and certainly they must sleep there or on rocks in the Hebrides, where they are met with during the cold season. I know no place where one can study their habits more effectively than in the neighbourhood of Edinburgh, where they are met with in flocks of from several hundreds to three or four individuals. You see them at early dawn flying off to the fields in a loose body, or meet them there even in the dim twilight; but it seems improbable that they remain at night in the open fields, as they are never observed to crouch in the manner of the

larks, pipits, and other birds that repose on the ground. Their flight, which is easy and rather slow, is performed with little undulation, by quickly repeated flaps of the wings, the bird spreading out those organs, making about twelve short flaps, and as it were intermitting one or more. In this manner they proceed, uttering a kind of chuckling chirp, until they arrive over a field on which they have a mind to settle, when they perform several circling evolutions, and at length alight. After settling, each is seen to stand still with its wings close, but a little drooping, its tail slightly declined, and its head elevated. It then hops rapidly a few steps forward, stops, picks up a seed, an insect, or other article of food, and again proceeds. They generally move in the same direction, always facing the wind if it be high, and those in the rear, especially if left far behind, fly up to the front. When alarmed, they all stand still for a short time, some utter a low scream, and presently all fly off to a distance, or alight on the tall trees in the neighbourhood. There they sit gracefully on the twigs, with their tails declined, and generally with their heads all directed one way, unless they have settled for the purpose of resting or amusing themselves after procuring a sufficiency of food. In fine weather they often enact a concert of long duration, which, although their song is neither loud nor very melodious, is very pleasant. When they are upon trees their attitudes resemble those of the Blackbird ; but they do not frequent bushy places, woods, or gardens, for the purpose of picking up snails, worms, or larvæ, but repair to the open fields and meadows, where it is amusing to see them in calm weather hopping about in all directions, stopping now and then to pick up their food, or to look around them. In this respect they resemble the Song Thrush, as well as the Redwing and Missel Thrush, with the two latter of which they often temporarily associate. They are very shy, seldom allowing a person to approach within a hundred yards in an open field, although when on trees they are somewhat less suspicious. In the former situation they keep at a distance from the hedges or walls, and fly off in a body ; but in the latter several individuals frequently remain behind the main body, and may sometimes be shot. Of the

three species the Redwing seems to be the least shy, and the Missel Thrush the most so, but all are very easily alarmed. The Song Thrush is the tamest of the genus, and next to it the Blackbird, but these species are not gregarious, even in severe weather. When the ground is covered with snow the Fieldfares betake themselves to marshy meadows, where they are often shot in great numbers; for, although repeatedly annoyed, they return at short intervals, and persons stationed here and there along the hedges are sure of obtaining many chances. The irrigated meadows to the west of Edinburgh are a favourite place of resort to all our Thrushes in frosty weather. On the 19th January 1835, I there shot ten Fieldfares, five Redwings, four Song Thrushes, and four Blackbirds. Should the pools and brooks be frozen, they repair to the woods and hedges, where they obtain a supply of hawthorn, holly, and other berries.

The food of the Fieldfare during winter and spring consists of berries of various kinds, worms, larvæ, pupæ, and insects, as well as seeds of cereal and other plants. I have never seen it in cornyards however, even in the most severe weather, but it frequently enters gardens in time of snow to eat the holly berries. It employs a small quantity of fragments of quartz and other hard substances to aid the trituration of its food.

Having neglected to note the alarm cry of this bird, I sought an opportunity of supplying the deficiency during a snow storm in March 1837, when I fell in with a great number of Fieldfares and Song Thrushes, with three Lapwings, busily engaged in searching for food in a piece of marshy ground that remained uncovered. The Fieldfares when flying off uttered a chuckling cry, resembling the syllables *yack, chuck, chuck, chuck.*

If the weather be fine, they generally disappear about the middle of April; but I have several times met with flocks in May. Thus, on Friday the 6th May 1836, I saw a flock of about twenty Fieldfares in East Lothian, about half way between Salton and Tranent. Mr Edward Lambert, in the Linnæan Transactions, Vol. III, p. 12, states that the latest Fieldfare he "ever saw was on the 1st of May in Dorsetshire, and the earliest on the 29th of September." The Reverend Messrs

Sheppard and Whitear, in the fifteenth volume of the same work, have the following note on the same subject, " In backward seasons, the Fieldfare is late before it leaves this country: it has been killed in the neighbourhood of Croma the first week of June. On the 5th of May 1812, we saw Fieldfares in prodigious numbers, flying very high, and steering due north. They were probably migrating at that time, as none were afterwards seen. We observed a very large flock of these birds on the 3d of May 1820; they were extremely tame, and suffered us to approach within a few yards. They were observed again on the following day in the morning, but were all gone in the afternoon." According to various writers, they retire in summer to the northern parts of the continent of Europe, where they breed, forming their nests on the pine trees.

The Fieldfare has been celebrated as an article of food, or rather as a luxury, and I have satisfied myself that it has not been undeservedly praised in this respect. The flesh is tender and sapid, and there is generally a great accumulation of fat in the cavity of the abdomen and under the skin. It is this species that is supposed to have been the Turdus so highly esteemed by the Romans, and which was fattened with a paste composed of figs and flour. Great numbers are sold in the London markets, and in those of other cities, but beyond the metropolis, the species seems to be little regarded; and in Edinburgh, Redwings and Blackbirds are as often seen in the market as Fieldfares, these and other small land birds going under the general name of Thrushes and Larks, while the small Grallatores are named Snipes.

As the species does not nestle with us, I am unable to describe the nest, eggs, or young in their first plumage. In his " Notes on the Ornithology of Norway," in the Magazine of Zoology and Botany, Vol. II, p. 312, Mr Hewitson has the following notice, " Of the thrushes, the Fieldfare is very common, although rather local, not generally dispersed through the forests, but occupying particular parts of them, to which it seems to return year after year, nests of previous years being mixed amongst those of the present. In these localities it abounds, breeding in society. The nests (a hundred of which might be

found in a very limited distance) are placed in the spruce fir, at distances from the ground varying from four to forty feet, or upwards. They as well as the eggs very much resemble those of the Blackbird; the latter were often five, and not unfrequently six in number. Their hurried flight from tree to tree, and their loud harsh cries, very soon point out their locality. Mr Swainson, in an article on the nests of birds in Lardner's Cyclopædia, in order to support a rule laid down by him, that all insectivorous birds are solitary builders, states that the Fieldfares are never known to breed together. In this statement, as I have shewn above, he is quite mistaken. How does he reconcile the habits of the House and Sand Martins to this rule? They (especially the latter) are not solitary builders."

Young in Second Plumage.—There is very little difference between the young birds after autumn and their parents, the yellowish-red of the fore-neck and breast being brighter, the grey of the head and rump less pure, and the chestnut of the back not so deep; but the characteristic mark is found in the feathers of the sides, which, in place of being brownish-black with white margins, are light coloured, with a pale-brown or dusky border within the white margin. The lower wing-coverts also, in place of being pure white, are frequently marked with dusky, and the dark streak along the centre of the feathers on the head is much larger than in the adult birds.

Remarks.—Among the affinities of the genus to other birds, it may perhaps seem surprising that I should indicate a strong resemblance between the Fieldfare and the Sky Lark. Let a person place the two birds beside each other, and he will perceive that the general form is pretty similar, the proportions nearly the same, the bills so like, that, leaving out the notch, the same description would answer for both. The tarsi and toes are nearly alike, although the claws differ greatly, and the marks on the fore-neck and breast are not dissimilar. There are differences to be sure, but there are certainly affinities.

In size and form, as well as in all the details as to the pro-

portions of parts, texture of plumage, and outlines of feathers, the Migratory Thrush, *Turdus migratorius* of America, is most intimately allied to the Fieldfare.

The following are the dimensions of a number of individuals :

			M.	F.	M.	
Length	$10\frac{1}{2}$	$10\frac{5}{12}$	$10\frac{1}{2}$	$10\frac{1}{2}$	$10\frac{7}{12}$	$10\frac{3}{4}$
Extent of wings	$17\frac{1}{4}$	$18\frac{1}{2}$	$16\frac{1}{2}$	$16\frac{1}{2}$	17	18
Bill	$\frac{8}{12}$	$\frac{8}{12}$	$\frac{9}{12}$	$\frac{9}{12}$	$\frac{10}{12}$	$\frac{10}{12}$
Wing	6	6			$5\frac{8}{12}$	$5\frac{7}{12}$
Tail	$4\frac{1}{12}$	$4\frac{1}{12}$			$4\frac{1}{4}$	$4\frac{5}{12}$
Tarsus	$1\frac{5}{12}$	$1\frac{5}{12}$	$1\frac{3}{8}$	$1\frac{3}{8}$	$1\frac{5\frac{1}{2}}{12}$	$1\frac{5}{12}$
Middle toe and claw	$1\frac{3}{12}$	$1\frac{3}{12}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{4}{12}$	$1\frac{4}{12}$

Several instances of the Fieldfare's breeding in this country have been mentioned, and it is not improbable that they may yet become more numerous, as has certainly been the case with the next species. Perhaps it may in some cases have been mistaken for it, as happened to a person who ~~two~~ many years ago brought me the eggs of the Missel Thrush for those of the Fieldfare, and to several of my natural History Pupils in Aberdeenshire, whose specimens and descriptions, however, left no doubt as to the species to which they belonged.

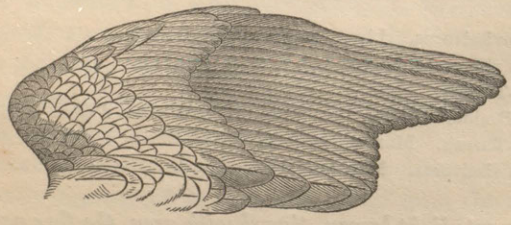


FIG. 130. WING OF BLACKBIRD.

4. TURDUS VISCIVORUS. THE MISSEL THRUSH, ~~OR SHRITE~~.

MISSEL THRUSH. MISTLE THRUSH. GREY THRUSH. STORM COCK.
HOLM THRUSH. SCREECH THRUSH.



FIG. 131.

Turdus viscivorus. Linn. Syst. Nat. I. 291.
Turdus viscivorus. Lath. Ind. Orn. I. 326.
Missel-Thrush. Mont. Orn. Dict.
Merle Draine. Turdus Viscivorus. Temm. Man. d'Orn. I. 161.
Missel-Thrush. Merula Viscivora. Selb. Illustr. I. 158.
Turdus viscivorus. Missel-Thrush. Jen. Brit. Vert. An. 98.

Upper parts light brown, tinged with grey, the fore part of the head greyish; the rump shaded with ochre-yellow; secondary coverts and tail-feathers tipped with greyish-white; a cream-coloured band from the base of the bill over the eye, the loral space greyish-white; the lower parts yellowish-white, each feather tipped with a black spot; the spots on the neck smaller and triangular, those on the breast larger, and transversely oblong.

Male.—The Missel Thrush, which is the largest European bird of the genus, differs little in form from the species already described, being however proportionally stouter, with the feet and bill smaller, and the tail shorter. Its proportions are nearly the same as those of the Song Thrush, which however it greatly exceeds in size, and its style of colouring is similar. The body is full, the neck rather short, the head of moderate size, the wings long, the tail rather long, and the feet rather small.

The bill is shortish, straight, slightly ascending, broader than high at the base, compressed towards the end, acute ; the edges sharp, direct, the upper overlapping a little, with a distinct notch close to the tip; the upper mandible has its outline arcuato-declinate, the ridge rather narrow, the sides convex, the tip narrow and rounded ; the lower mandible has the angle of moderate length, rather narrow, rounded, the back flattened at the base, narrow towards the end, the dorsal outline slightly convex, the sides convex, the edges considerably inflected ; the gape-line slightly arched. Both mandibles are internally deeply concave, with a prominent median line; the palate flat, with two prominent lines ; the posterior aperture of the nares oblongo-linear. The tongue is slender, sagittate with longish papillæ at the base, its tip bristly and slit. The œsophagus is four inches long, without dilatation, but rather wide, its average diameter being about four-twelfths and a half. The stomach is a gizzard of moderate strength, irregularly oblong, compressed, its muscles distinct, the right tendon largest, its greatest diameter an inch and five-twelfths. The intestine is nineteen inches long, its diameter in the duodenal portion five-twelfths, afterwards contracting gradually to three-twelfths at the cœca, which are cylindrical, three-twelfths long, and situated at the distance of an inch and a half from the anus.

The eyes are of moderate size, their aperture being two-twelfths and three-fourths. That of the ear is circular, and three and a half twelfths in diameter. The legs are rather slender, and of ordinary length ; the tarsus compressed, anteriorly covered with a long undivided plate, and four inferior scutella, posteriorly with two long plates meeting at an acute angle. The toes are of moderate size, the first with eight, the

second with ten, the third with thirteen, the fourth with twelve scutella; the fourth is a little longer than the second, the first longer, and the third by much the longest. The claws are rather long, much compressed, tapering, arched, acute.

The plumage is ordinary, rather compact, but soft, and slightly glossed; the feathers oblong, rounded, and nearly simple, having but a slight plumule. There is a row of bristle-feathers along the base of the upper mandible. From the hind-head there are protruded beyond the feathers eight slender simple filaments, as in the Fieldfare. The wings are long, broad, and rounded; the quills eighteen; the first extremely small and narrow, the second and fifth about equal, the third and fourth equal and longest; the third, fourth, and fifth slightly cut out on their outer edge; all the primaries rounded, the inner more broadly, with a minute tip; the secondaries long, broad, broadly rounded, the outer abrupt, with a minute tip. The wings when closed extend to the middle of the tail-feathers. The tail is rather long, slightly rounded, nearly straight, its feathers of moderate breadth, and rounded, with a minute tip.

The upper mandible is dusky-brown, its edges lighter; the lower flesh-coloured at the base, dark brown in its distal half; the skin at the opening, and the inside of the mouth yellow. The edges of the eyelids are dusky; the iris brown. The feet are flesh-coloured, the claws brownish-black. The general colour of the plumage on the upper parts is light olivaceous brown tinged with grey; the upper part of the head, and especially the hind-neck lighter, with more grey; the hind part of the back passes into yellowish-brown, the rump into ochre-yellow, and the upper tail-coverts are tipped with greyish-white. The quills, alula, and primary coverts are deep brown, narrowly margined with greyish-yellow; the secondary coverts, with the greater part of their outer webs greyish-brown, their tips, and those of the first row of coverts yellowish-white. The tail-feathers are greyish-brown, slightly margined with yellowish, and more or less tipped with greyish-white; the greater part of the lateral feathers, and the terminal portion of the next, grey, both largely tipped with white on the inner web, and the inner web of the former indistinctly barred with

grey. There is a cream-coloured band from the base of the upper mandible to above the eye; the loral space greyish-white. The general colour of the lower parts is pale ochre tinged with red, each feather tipped with a black spot. The throat is dull white, with faint spots. On the fore-neck the spots are triangular, on the breast and sides transversely oblong, on the abdomen small and transverse. The lower tail-coverts have two longitudinal dusky bands parallel to the shaft, their medial part and tip white, their margins ochre-yellow. The axillar feathers and lower wing-coverts white.

Length to end of tail 11½ inches; extent of wings, 19½; bill along the ridge $\frac{10}{12}$, along the edge of lower mandible 1¼; wing from flexure 6½; tail 4½; tarsus $1\frac{3}{12}$; first toe $\frac{6}{12}$, its claw $\frac{6}{12}$; second toe $\frac{7}{12}$, its claw $\frac{5}{12}$; third toe $\frac{11}{12}$, its claw $\frac{4\frac{1}{2}}{12}$; fourth toe, $\frac{7\frac{1}{2}}{12}$, its claw $\frac{5}{12}$.

Female.—The female does not differ very perceptibly from the male in colour or size, being merely a little paler, and slightly smaller. The digestive organs are similar in dimensions. The œsophagus four inches long, its average diameter four-twelfths and a half; the stomach an inch and a quarter in its greatest diameter; the intestine seventeen inches long, its diameter varying from five to three twelfths; the cœca three twelfths of an inch long, and an inch and a half distant from the anus.

Length to end of tail 11 inches; extent of wings 19; bill along the ridge $\frac{9}{12}$, along the edge of lower mandible 1¼; wing from flexure 6¼; tail 4½; tarsus $1\frac{2}{12}$; middle toe and claw 1¼.

Variations.—Between adult individuals compared at the same season, there are scarcely any apparent differences. White and variegated birds are said to occur, but I have not met with any. A bird in the museum of the University of Edinburgh is in all probability a hybrid between the Missel Thrush and Blackbird, the upper parts being similar to those of a young Missel Thrush, while on the lower black is the predominant colour, as it also is on the head, and although there are irregular light-coloured markings on the neck and breast, there are none

of the triangular or roundish spots seen in the ordinary state of the Missel Thrush. This individual may possibly be a melanitic variety, but the two cases of matrimonial union between the Blackbird and Song Thrush recorded in this work authorize us to suppose that similar unions may take place between the Blackbird and Missel Thrush. The following table exhibits the dimensions of several individuals :—

	F.	F.	M.		
Length.....	11 2/12	10 10/12	11 1/2	11 4/12	11 1/2
Extent of wings.....	18	18	19 1/2	18 1/2	19
Bill.....	9 1/12	9/12	9/12	9/12	8/12
Wing.....	6 1/2	6 1/4	6 1/2	6 4/12	6 1/4
Tail.....	4 1/2	4 3/4	4 3/4	4 1/4	4 3/4
Tarsus.....	1 1/4	1 1/4	1 2 1/2 / 12	1 1/4	1 2 1/2 / 12
Middle toe and claw..	1 4/12	1 1/4	1 1/4	1 4 1/2 / 12	1 4 1/2 / 12

Changes.—The plumage is perfect in November, and continues so until the end of winter. After that period, the feathers of the tail are worn, and by the middle or end of summer, a considerable change has taken place. Summer specimens in fact are easily distinguished from those killed in winter. Their feathers are worn, the upper parts have assumed a grey and bleached appearance, the yellow of the lower parts has faded considerably, so that the colour of the throat and breast is greyish-white, spotted with dusky. The moult commences towards the end of summer, and is completed by the end of November. Young birds in their second plumage have more yellow on their lower parts.

Habits.—The Missel Thrush is a permanent resident, but the native birds of the species are supposed to be joined by others from the continent towards the end of October. They fly about in loose flocks, composed of a few individuals, seldom more than twenty, and at this season betake themselves to the open fields, especially those recently ploughed, where they search for worms, larvæ, and seeds. On alighting, the bird stands for some time with the body and tail inclined, the head raised, the wings

slightly drooping. Should it descry symptoms of danger, it alarms its companions by a low harsh scream, when they all remain attentive for a while, and fly off, or should they judge themselves safe, commence their search, in prosecuting which they scatter about more than the Fieldfares or Redwings. If you watch the motions of one, you see it hop smartly along, stop to pick up an object, then resume the attitude of attention, hop forward, dig up a worm, break it to pieces, and swallow it, then stand again, and thus continue until satiated or put to flight. In this manner, which is precisely that of the Fieldfare and Common Thrush, they continue feeding for hours, unless disturbed, generally keeping at a considerable distance from each other, so that two can very seldom be shot at once. They are extremely vigilant, and the moment one is alarmed it emits a low *churr*, which is repeated by the rest, when they either fly to the trees in the neighbourhood, or flit to a distant field. In an openplace, they hardly consider themselves safe at the distance of two hundred yards; and although they remain while a person passes them, they fly off if he stands to watch them. When perched on trees they seldom allow a nearer approach than a hundred yards. If they are feeding near a low wall, you may occasionally obtain a shot by going to the place and suddenly starting up, but you have little chance of catching them unawares by slowly raising your head and gun between the stones. I once shot a fine specimen in a field near Edinburgh, through a hole at the bottom of a wall, just as, having observed me, it was about to fly off.

The Missel Thrush, during winter and spring, is thus more vigilant and suspicious than even the Fieldfare, and, for this reason, as well as because it is much rarer, is seldom shot. It sometimes associates with that species in the fields; but rarely flies with it. Its flight, which is rather heavy, is performed by a series of flappings, with short intervals of cessation, like that of the Fieldfare, and has very little undulation. On occasion, however, it becomes rapid; and, when at full speed, a Missel Thrush bears a considerable resemblance to a Sparrow-Hawk or Merlin; and small birds are sometimes seen pursuing it, as they are wont to fly after a bird of prey. It is

seldom that the individuals of a flock fly low or close together. While proceeding, they now and then utter a low scream, and when they find an eligible place, they either alight abruptly at a distance from each other, or fly over the field for some time.

The song of this bird resembles that of the Blackbird, but its notes are less mellow and modulated, although equally loud. It commences very early in spring, or even in winter, when the weather is fine, and is continued until the middle of summer; but, as the species is comparatively scarce in most parts, it is seldom heard, and when it is, is usually mistaken for that of the Blackbird or Song Thrush. Several individuals have heard it sing when flying from one place to another, but on such occasions I have only heard it utter its harsh scream.

The flocks break up in March, and about the end of that month, or towards the middle of April, the different pairs commence their building operations, selecting a natural wood, a plantation, or frequently an orchard, for their summer residence, whence they make excursions into the neighbouring fields and gardens. The nest, which is placed in the fork of a tree, or on a branch, generally at an inconsiderable height, is very bulky, and more rudely constructed than that of the other species which build with us. It is composed externally of twigs, straws, and grasses of various kinds, intermixed with leaves and mosses; within this is a rudely formed cup of mud, generally in pellets, mixed with grass or fibrous roots. The interior is a more carefully arranged layer of finer grasses, roots, and moss, or frequently of grass alone. Sometimes the exterior is partially covered with grey lichens and mosses; but at other times it is similar to that of the Blackbird's nest. The internal diameter of one now before me is four and a half inches, its depth two and three-fourths, and the thickness of its walls an inch and three quarters. The eggs, usually four, or from three to five, are of a regular oblongo-oval form, an inch and three-twelfths in length, by ten-twelfths, flesh-coloured, or purplish-white, marked with irregular scattered spots of light brownish-red and more obscure spots of purplish-red.

Two broods are generally reared in the season, and the young of the first nest keep together, or even unite with those of other

A One, from Leicestershire, measures externally six inches and a half, internally three inches and three fourths. It is composed externally of twigs, grass, and some lichens; then of flattened pellets of mud, with a lining of grass and a few large feathers; the mouth firmly constructed of interwoven panicles of aira cæspitosa, intermixed with twigs, root-fibres, and some wool.

nests, so as to form small flocks. As an instance of the early flocking of Missel Thrushes I may mention that on the 25th of June 1837, I saw seventeen of them flying over the fields in the evening, and settling on some tall trees, in the neighbourhood of Craigmillar Castle, near Edinburgh. By the middle of September, large flocks are generally met with, and during that month and the following, they eat great quantities of the berries of the Mountain Ash and Service Tree. Even in the breeding season, they are shy, although then it is not so difficult to approach them when in the fields, and still less so if you have discovered their nest. They defend their eggs and young with great courage, drive off the Magpie and other suspected birds, and even assail the Sparrow Hawk, although not always with success.

The food of the Missel Thrush consists, in summer, of earthworms, larvæ, gooseberries, rasps, and insects; in autumn of geans or wild cherries, rowans, moor berries, worms and snails; in winter and spring, of haws, snails, worms, and especially seeds of oats, wheat, and other plants. In the latter seasons, it keeps in the open fields, very seldom betaking itself to gardens, unless during a protracted snow-storm, when it searches the hollies and hedges for berries, and drives off the other Thrushes which may betake themselves to the same places.

I have not met with it in the Hebrides, or even in the northern division of Scotland. In the middle division of that country it is very rare, although I have seen it there, even among the Grampians. In the southern parts, on the contrary, it is not uncommon, whether in the cultivated districts or among the central hills. On the 31st August 1832, I observed a large flock near Peebles, eating the berries of Sorbus aucuparia; and on the 2d September met with seven near the summit of one of the Yarrow Hills. On the same excursion I found them here and there in the counties of Selkirk and Peebles, and was informed that they commit great havock among the gooseberries in the gardens around Selkirk. At Gifford and Haddington, in East Lothian; Roslyn, Edinburgh, Colinton, and other places in Mid-Lothian; and generally in the wooded parts of this division, they are seen here and there in pairs during

summer; and in winter occur in flocks in the fields. In England the species is generally distributed, but is less common in the northern than in the southern counties.

"The Missel Thrush," says Mr Weir, in a communication dated 21st March 1837, "is the earliest songster of the spring. Even on those cold and rainy or snowy evenings in which all the rest of the musical tribe are mute, we hear him, perched on the top of some high tree, pouring forth his strong, shrill, monotonous song. It is not generally known, at least I do not recollect of having seen it mentioned in books of natural history, that the Missel Thrush is one of the most voracious of our native birds. Having shot all the Magpies and Carrion Crows which infested my immediate neighbourhood, I could not conceive for a long time what had been the cause of the destruction of so many young birds and eggs, until I observed one of them flying out of a nest in which he had been carrying on his murderous operations. As I was passing by Balbairdie Loch, I saw one flying with something in its bill. It was, I suppose, a young Hedge-Sparrow, as the robber was keenly pursued by an old one, which attempted again and again to make it drop its prey; but alas! to no purpose, for it carried it off to its nest, where it no doubt afforded an agreeable repast to its greedy young ones. One forenoon, when going to my garden, I looked into the nest of a Thrush which was built on the branch of a small spruce tree a few feet from the ground, and contained four young ones nearly fledged. Having returned in the course of a few hours I again peeped into it, when, to my astonishment, I beheld one of them severely cut in the breast and almost at the point of death. I could not imagine what had been the cause of this sudden catastrophe. The gardener, however, told me that whilst he was watching his bees, he heard the male and female thrushes setting up the most doleful screams. He immediately ran to the spot in the expectation of seeing a cat or a weasel; but in place of them he beheld a Missel Thrush in the very act of killing one of their brood. So determined was it in carrying into effect its daring attempt at murder that he got within a few yards of it before it observed him. A few days after this, the same person, in company with

a friend, observed another Missel Thrush carrying a bird in its bill to its nest, which was built in the cleft of a tall plane-tree, within a few yards of my pigeon-house."

Another very interesting communication, dated 5th January 1838, refers to the number of times which this species feeds its young in the course of the day. "At the extremity of the lowest branch of a spruce, within thirty-three yards of my dwelling-house, about the middle of May 1837, a pair of Missel Thrushes built their nest. In the erection of it they were so exceedingly cunning, that although people were in the habit of passing and repassing by it almost every hour in the day, it was not discovered until the female had been sitting for a week upon her eggs. From my drawing-room window, with an excellent perspective, on Wednesday morning the 14th of June, I began to watch them whilst they were feeding three ripe young ones.

"At twenty minutes past four o'clock they commenced the labours of the day. From that time until five o'clock they fed their young only five times; from five to six o'clock three times; from six to seven o'clock six times; from seven to eight o'clock twelve times; from eight to nine o'clock six times; from nine to ten o'clock four times; from ten to eleven o'clock five times; from eleven to twelve o'clock four times; from twelve to one o'clock three times; from one to two o'clock three times; from two to three o'clock three times; from three to four o'clock two times; from four to five o'clock two times; from five to six o'clock two times; from six to seven o'clock five times; and from seven to eight o'clock only once. During this last hour it rained very heavily, and there was a good deal of very loud thunder. At twenty minutes past eight o'clock they ceased from their operations, having fed their brood only sixty-six times during the day.

"To their young they brought in each time several large worms and snails. Before they did so, however, they generally alighted upon two or three trees, remaining some seconds upon each of them, and looking around with the greatest jealousy and circumspection. In the defence of their brood they were very bold, for, no sooner did a Magpie make its appearance

than they immediately attacked it, and did not desist until they put it to flight. Except once or twice, they swallowed the whole of the droppings of their family.

"In this neighbourhood, during autumn, they assemble in large flocks. On the 11th of August 1837, on the estate of Sir William Baillie, Bart. of Polkemmet, about two miles from Bathgate, I saw about seventy of them flying and feeding in the same way as the Fieldfares; and on the 8th of September, near my house, I observed another large flock of them."

Mr Archibald Hepburn has sent me the following notice:—"Missel Thrushes are very wary birds. When they come to our garden to eat the berries of the yew, holly, ivy, or mountain-ash, they alight on a row of tall willow-trees to see if they may remain with safety, and on finding matters according to their wishes, descend to the feast, making a prodigious noise. They are very quarrelsome. The snow is lying four inches deep (January 5, 1839); a dozen of Missels are in the garden feeding on the berries of the common and Irish yew and holly, quarrelling amongst themselves, driving off the Blackbirds and Song Thrushes, and even pursuing them on foot round the roots of the evergreens, all the while uttering their harsh notes. In autumn I have seen them pursued by Sparrows and Chaffinches, but whether in sport or anger I could not say. In the parish of Carnwath, county of Lanark, I have seen several flocks of fifty or sixty birds in one day; their great numbers there lead me to suppose that they must migrate from other districts. Here you seldom see more than a dozen in a flock. The last time I heard the Missel Thrush singing was on the 18th of October."

This species has obtained its common name from its being supposed to feed by preference on the berries of the misseltoe, Viscum album, a curious parasitic plant, abundant on apple and other trees in many parts of England, but extremely rare in the south of Scotland, and I believe not found in any other part of that country. According to Pliny, the misseltoe will not grow unless from seeds that have passed through the intestines of birds, especially Thrushes and Wood Pigeons, and many authors have adopted the erroneous notion that the bird

of which we treat is its principal disseminator. Montagu, however, discredits the necessity of the seed's passing through the body of a bird in order to fit it for germinating, and remarks that although it may germinate after so passing, this is no more wonderful than that corn should grow when voided whole by a horse. "Such a preparation," he asserts, "is no more necessary in the one case than the other, but may be considered as one of the methods nature takes to disperse the seeds of various plants." Now, although I have opened many hundreds of berry-eating and seed-eating birds, among which were probably sixty or more Thrushes of various species, I have never, but in two instances, which have been already mentioned, found an entire seed in the intestines. The gizzard of the Thrushes is sufficiently powerful to grind into a paste the seeds of any fruit which they might eat; and I do not believe that nature ever uses this method of dispersing plants, simply because no person has ever actually observed seeds to germinate after being passed by birds, because seeds could escape from the action of the stomach only in carnivorous or piscivorous species, and by no means in frugivorous or granivorous, whose gizzards act like millstones; and, lastly, because mere fancies ought on no account to be admitted as facts.

As will be seen from the above account, this species presents in its predatory habits, an affinity to the Shrikes, Jays, and Magpies, and like other tyrants, is held in aversion by many of the smaller birds, which sometimes pursue or hover about it, as if it were a hawk. Its harsh screaming cry, when angry or alarmed, is in accordance with its wild and savage temper, which affords a complete contrast to the gentleness of the Song Thrush.

The Missel Thrush is apparently increasing with rapidity, for, in places where fifteen years ago few or none were to be seen, it is now pretty numerous. It is probable enough that many come to us about the beginning of winter from more northern countries; but it would be difficult to ascertain whether they really do so; and the numbers seen in winter and spring are not greater than might be expected from those met with in summer and autumn.

The flesh of this species affords good eating, being similar to that of the Fieldfare, but tougher and generally leaner than that of the Blackbird.

Young.—The young when fledged are much more beautifully coloured than the old birds. Their bill is flesh-coloured, with the upper mandible dusky; the feet also flesh-coloured, with the claws brownish. The general colour of the upper parts is pale yellowish-brown; the feathers of the head with a whitish spot in the centre, those of the back with an oblong central mark of greyish-yellow, the tip dark-brown. The quills and tail-feathers are wood-brown, margined with greyish-yellow. The lower parts are pale-yellow, each feather with a triangular brownish-black mark on the tip.

Progress toward Maturity.—At the first moult, which is completed by the end of November, the bird assumes the appearance described as that of the adult.

5. TURDUS MUSICUS. THE SONG THRUSH, ~~OR MAVIS~~.

THRUSH. COMMON THRUSH. GARDEN THRUSH. THROSTLE.
MAVIS. SMEORACH.

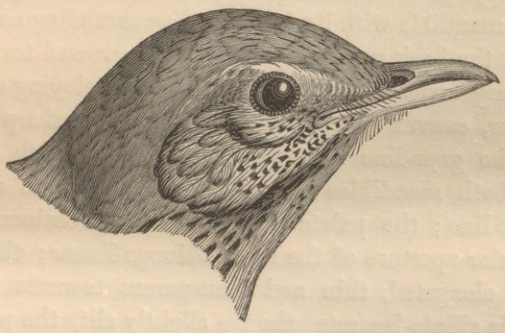


FIG. 132.

Turdus musicus. Linn. Syst. Nat. I. 292.
Turdus musicus. Lath. Ind. Orn. I. 327.
Throstle. Mont. Orn. Dict.
Merle Grive. Turdus Musicus. Temm. Man. d'Orn. I. 164.
Song-Thrush. Merula Musica. Selb. Illustr. I. 162.
Turdus musicus. Song-Thrush. Jen. Brit. Vert. An. 100.

Upper parts yellowish-brown, the head tinged with red; secondary coverts and first row of small coverts tipped with reddish yellow; fore part of neck and breast yellowish, each feather terminated by a triangular brownish-black spot; lower wing-coverts reddish-yellow.

MALE.—This generally distributed, familiarly known, and much admired songster, exhibits no remarkable peculiarity of form, its proportions being nearly the same as those of the Missel Thrush, which greatly exceeds it in size. Its colouring is neither altogether plain, nor yet of great beauty, the

upper parts being of a uniform light-brown tint, the lower spotted as in many other species. The body is rather full, the neck rather short, the head of moderate size, the wings and tail of ordinary length. The bill is rather larger in proportion than that of the Missel Thrush, slightly ascending, straight, compressed towards the end; the upper mandible with its dorsal outline nearly straight at the base, arcuato-declinate towards the end, the sides convex, the edges a little inflected and overlapping, the tip declinate, narrow, with a slight notch; the lower mandible with its dorsal outline ascending and slightly convex, the back rounded at the base, narrowed towards the end, the angle narrow and rounded, the sides sloping outwards at the base, convex towards the end, the edges sharp and inflected; the gape-line nearly straight. The mouth is rather narrow; both mandibles are deeply concave, with a central prominent line; the palate flat, with two prominent lines; the posterior aperture of the nares oblongo-linear; the tongue sagittate, elongated, thin and transparent towards the end, where it is ciliato-lacerate, the tip slightly slit, the papillæ at the base conical, one of them at each angle much longer. The œsophagus is three inches and a quarter long, three-twelfths in diameter; the stomach oblong, an inch and a quarter in length; the intestine seventeen inches long, and varying in diameter from five to three twelfths; the cœca three twelfths long, and an inch and a quarter from the anus.

The eyes are of moderate size, the diameter of their aperture two and a half twelfths; that of the ear three twelfths. The nostrils elliptical, direct, a twelfth and a half long. The legs are of ordinary length, rather slender; the tarsus compressed, anteriorly covered with a long plate and three inferior scutella, posteriorly with two long plates meeting at a very acute angle; the toes moderate, on the first eight, on the second ten, on the third thirteen, on the fourth twelve scutella; the claws arched, much compressed, rather acute, laterally grooved.

The plumage is soft and rather blended, slightly glossed; the feathers oblong, rounded, with a long slender plumule of few filaments. A few longish bristle-feathers along the base of the upper mandible. The wings are of moderate length,

broad, semi-ovate, rounded; the quills eighteen; the first extremely small and slender, the third and fourth equal, the second almost as long as the fifth, the sixth much shorter; the third, fourth, and fifth cut out along their outer web, the first five slightly cut out on their inner edge; the secondaries broad, broadly rounded and minutely acuminate. The wings when closed extend to near the middle of the tail-feathers. The tail is of moderate length, even, the feathers nearly straight, rather narrow, rounded and acuminate.

The upper mandible is blackish-brown, the lower yellowish flesh-colour, dusky towards the end, and along the lower edge of the crura. The skin at the sides of the mouth yellow, the mouth orange. Iris chestnut brown. Tarsi and toes pale yellowish-grey, or flesh-colour, the heel dull yellow, the soles darker and tinged with yellow, the claws wood-brown. The general colour of the plumage above is uniform light brownish-olive, on the head tinged with reddish-brown, on the hind part of the back with yellowish-grey; from the nostril to the eye and over it a faint greyish-yellow streak; the ear-coverts dark-brown, streaked with brownish-yellow, the central part of each feather being of the latter colour. The quills are deep brown, their outer webs reddish-brown, and edged with paler; the primary coverts like the quills; the secondary coverts lighter and tipped with dull buff, as is the second row; the smaller coverts and scapulars uniform; the tail feathers of the same colour as the back, darker on their inner webs. The throat is yellowish-white; the lower part of the cheeks, the sides of the neck, and its fore part, are pale reddish-yellow, each feather terminated by a triangular brownish-black spot; the sides are of the same colour but duller, and shaded into that of the back, their spots more elongated; the breast and abdomen white, the former marked with smaller spots, the latter nearly pure; the lower tail-coverts yellowish-white, streaked with brown. The lower wing-coverts are buff, or light reddish-yellow, and the inner webs of the quills are tinged of the same colour.

Length to end of tail 9 inches; extent of wings 14; bill along the ridge $\frac{9}{12}$, along the edge of lower mandible $\frac{11}{12}$; wing from flexure $4\frac{7}{12}$; tail $3\frac{1}{4}$; tarsus $1\frac{3}{12}$; hind toe $\frac{6}{12}$, its claw

$\frac{5}{12}$; second toe $\frac{6\frac{1}{2}}{12}$, its claw $\frac{2\frac{1}{2}}{12}$; third toe $\frac{10}{12}$, its claw $\frac{5\frac{1}{2}}{12}$; fourth toe $\frac{6\frac{3}{4}}{12}$, its claw $\frac{2\frac{1}{2}}{12}$.

Female.—The female is generally smaller, but resembles the male in colour, only the yellow of the fore-neck and sides is paler, and the spots on these parts are of a lighter brown.

Length to end of tail $8\frac{1}{2}$; extent of wings 12; wing from flexure $4\frac{1}{2}$; tail $3\frac{1}{2}$; tarsus $1\frac{2}{12}$; middle toe and claw $1\frac{1}{12}$.

Variations.—Individuals having more or less white on their upper parts are sometimes met with. Slight differences in tint are observable; but in specimens shot at the same period they are so slight as to be scarcely appreciable. As to size, there are considerable differences, as may be seen from the following measurements taken at different times:—

	M.		M.	F.	F.	F.		
Length.....	$9\frac{1}{4}$	$9\frac{1}{4}$	9	$8\frac{1}{4}$	$8\frac{1}{2}$	9	$9\frac{1}{4}$	8
Extent.....	$14\frac{1}{2}$	$14\frac{3}{4}$	13	$12\frac{1}{4}$	12	$14\frac{1}{2}$	$14\frac{3}{8}$	14
Bill.....	$\frac{3}{4}$	$\frac{8}{12}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	
Wing.....	$4\frac{10}{12}$							
Tail.....	$3\frac{3}{4}$							
Tarsus.....	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{2\frac{1}{2}}{12}$	$1\frac{2}{8}$	$1\frac{2}{12}$		
Middle toe...	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{2}{12}$	$1\frac{2}{12}$	$1\frac{1}{8}$	$1\frac{1}{8}$		

Changes.—As the summer advances the edges of the feathers become more or less ragged, and the tail worn; the colours fade considerably, the brown of the back becoming greyish, and the yellow disappearing from the lower parts, of which the ground colour becomes nearly greyish-white. I have seen specimens at this season from which the yellow had entirely disappeared.

Habits.—The Song Thrush is associated in my memory with the Hebrides, where it is perhaps more abundant than in most parts of Britain. There, in the calm summer evening, such as for placid beauty far exceeds any that I have elsewhere seen, when the glorious sun is drawing towards the horizon, and

shedding a broad glare of ruddy light over the smooth surface of the ocean; when the scattered sheep, accompanied by their frolicsome lambkins, are quietly browsing on the hill; when the broad-winged eagle is seen skimming along the mountain ridge, as he wends his way toward his eyry on the far promontory; when no sound comes on the ear save at intervals the faint murmur of the waves rushing into the caverns and rising against the faces of the cliffs; when the western breeze stealing over the flowery pastures carries with it the perfume of the wild thyme and white clover; the song of the Thrush is poured forth from the summit of some granite block, shaggy with grey lichens, and returns in softer and sweeter modulations from the sides of the heathy mountains. There may be wilder, louder, and more marvellous songs, and the Mocking Bird may be singing the requiem of the red Indian of the Ohio, or cheering the heart of his ruthless oppressor, the white man of many inventions; but to me it is all-sufficient, for it enters into the soul, melts the heart into tenderness, diffuses a holy calm, and connects the peace of earth with the transcendent happiness of heaven. In other places the song of the thrush may be lively and cheering; here, in the ocean-girt solitude, it is gentle and soothing; by its magic influence it smoothes the ruffled surface of the sea of human feelings, as it floats over it at intervals with its varied swells and cadences, like the perfumed wavelets of the summer wind.

Here on the hill-side lay thee down on this grassy bank, beside the block of gneiss that in some convulsion of primeval times has been hurled unbroken from the fissured crag above. On the slope beneath are small winding plots of corn, with intervals of pasture, and tufts of the yellow iris. The coast is here formed of shelving crags, and jutting promontories, there stretches along in a winding beach of white sand, on which the wavelets rush with gentle murmur. Flocks of Mergansers and dusky Cormorants are fishing in the bay, the white Gannets are flying in strings toward the ocean, the Rock-Doves glide past on whistling pinions, and the joyous Starlings bound toward their rocky homes. Hark to the cry of the Corn-crake, softened by distance, now seeming to come from afar, now

louder as if borne toward you by the breeze. It has ceased, but the Cuckoo calls to his mate from the cairn on the hill. Again all is silent. The streaks in the channel shew that the tide is ebbing; a thin white vapour is spread over the distant islands; and beyond them the spirit wings its flight over the broad surface of the ocean, to where the air and the waters blend on the western horizon. But it is recalled by the clear loud notes of that speckled warbler, that in the softened sunshine pours forth his wild melodies on the gladdened ear. Listen, and think how should you describe the strain so as to impress its characters on the mind of one who never heard it. Perhaps you might say that it consists of a succession of notes greatly diversified, repeated at short intervals with variations, and protracted for a long time; that it is loud, clear, and mellow, generally sprightly, but at times tender and melting. You might add that two birds at a distance from each other often respond, the one commencing its song when the other has ceased; and that sometimes several may be heard at once, filling a whole glen with their warblings. ~~Listen again, and say what does it resemble.~~ I moved one attempt to put the Thrush's song into syllables, after the manner of an Anglo-American naturalist, he might perhaps liken it to:— Qui, qui, qui, kweeu, quip — tiurru, tiurru, chipiwi — too-tee, too-tee, chiu choo — chirri, chirri, chooee — quiu, qui, qui.

Dear, dear, dear,
Is the rocky glen;
Far away, far away, far away
The haunts of men.
Here shall we dwell in love
With the lark and the dove,
Cuckoo and corn rail;
Feast on the banded snail,
Worm and gilded fly;
Drink of the crystal rill,
Winding adown the hill,
Never to dry.

With glee, with glee, with glee,
Cheer up, cheer up, cheer up; here
Nothing to harm us; then sing merrily,
Sing to the loved one whose nest is near,
Qui, qui, qui, Kweeu, quip,
Tiurru, tiurru, chipiwi,
Too-tee, too-tee, chiu choo,
Chirri, chirri, chooee,
Quiu, qui, qui.

~~No more, pray: the Thrush's song is inimitable, and indescribable.~~ It is heard at all seasons in fine weather, but especially in spring and summer, particularly in the early morning and about sunset. But it is not in sunshine only that this gentle songster warbles its wild notes; for often in the midst of the thick rain, it takes its stand in some sheltered spot, under the cover of a projecting crag or stone, and for hours perhaps amuses itself with repeating its never-tiring modulations.

The Song Thrush, which is a resident species, is distributed over all parts of Scotland and England. In summer it prefers the woods and hill-sides, the bushy banks of streams, and sheltered places at some distance from human habitations, although in cultivated districts it often nestles in the orchards, gardens, and hedges. In winter the individuals which had made the woods and glens their summer residence, approach the houses, and feed in the gardens and fields, or betake themselves to the rocky shores, where they find subsistence by breaking the welks and other shell-fish.

Although in the cultivated districts it is seldom seen unless among the bushes or hedges, it is capable of flying to a great distance, which it does in gentle curves, with quick flaps, intermitted at intervals, sometimes at a considerable height, but more frequently only so high as to clear the trees. Its flight is always rapid, and it selects its place with quickness, settling instantaneously.

When on the ground, and in the attitude of observation, it droops its wings a little, keeps its tail nearly horizontal, and raises its head obliquely. On observing a worm or other object, it leaps briskly towards it, picks it up, or, if it has withdrawn, pecks at the earth until it has seized it. Its general mode of progression on the ground is by leaping. When in a listless mood, it droops the tail and wings, draws in its neck, and ruffles its feathers. In this attitude it may often be seen perched on a tree, bush, or stone.

Its food is chiefly found on the ground, and consists of snails, earth-worms, larvæ, coleoptera, heps, berries, and seeds of various kinds. Helix aspersa, hortensis, and nemoralis supply great part of its food in winter. It breaks the shells by raising

them in its bill, and knocking them repeatedly against a stone. Large heaps of the shells thus broken may be seen by garden walls, and in pastures on the edges of thickets. In the Hebrides, where it frequents the shores in winter, it treats the ~~Turbo littoreus~~ and Trochus ~~conuloides~~ in the same manner; and of these shells the fragments may often be found under shelter of some stone or slab, to which the bird flies with its prey. Many years ago, having in the course of my littoral rambles in Harris, frequently heard a sharp sound like that of a small stone struck upon another, I endeavoured to discover its cause; but for a long time in vain, until at length, being one day in search of birds, when the tide was out, I heard the well known chink, and standing still discovered at a distance, in a recess formed by two flat stones at the upper part of the shore, a bird moving its head and body alternately upwards and downwards, each downward motion being followed by the noise which had hitherto been so mysterious. Running up to the place, I found a Thrush, which flying off, left a welk newly broken, but with the animal in it, lying amidst a heap of fragments around a smooth stone. Having some years after mentioned the circumstance to a scientific friend in Edinburgh, I was favoured with an assurance of the utter impracticability of the feat, which indeed is at first mention not very credible, although one may easily satisfy himself that a welk, thick as it is, is very easily broken by knocking it smartly against a hard body.

In the plains Thrushes are sometimes met with in considerable numbers in winter, and during snow betake themselves, along with the Fieldfares and Redwings, to wet meadows; but the species is not strictly gregarious at that season. It is always more easily procurable than any other species of the genus, it being almost as familiar in winter as the Robin. Happening on the 12th March 1837, when there was snow on the ground, to meet with a Thrush searching for food along a wall, the base of which was clear, I followed it slowly over a space of about two hundred yards, without its seeming in the least alarmed, for it allowed me at times to approach within six paces. On this occasion, and on others, I have observed

that just before rising to fly it runs a few steps, and does the same after alighting, although its ordinary mode of progression is by leaps.

Song Thrushes are sometimes seen in the markets, along with Fieldfares and Blackbirds. In the beginning of winter, when they feed on snails and worms, they are very fat and sapid, as well as savoury. Besides man, their principal enemies are the smaller hawks. I have several times seen a Thrush take refuge in a house when pursued by a Merlin or Sparrow Hawk.

The full song of this species is heard in April, May, and June, although, as I have already said, it may be occasionally heard at any season. In March it pairs, and by the end of that month or in the beginning of the next, begins to construct its nest, which is placed in a thick bush of any kind, or in a hedge, at a small height, or on a rough bank among shrubs or moss. In the unwooded parts of the country it is found under shelter of a projecting stone or crag, in the crevice of a rock, or at the root of a tuft of heath, or among the stunted willows on the rocky bank of a stream. It is composed externally of slender twigs, roots, grass, and moss, and is lined with a thin layer of mud, cow-dung, or rotten wood, neatly laid on, and between which and the eggs no other substance is interposed. The diameter of the cavity is usually about four inches, its depth from two and a half to four. As a good deal of wrangling has taken place on the subject of Thrushes' nests, I may be allowed to be somewhat particular in this matter.

Although the structure of the nest does not vary much, the materials are very diversified. In a nest before me, which is very bulky, the exterior is formed of the long tough roots of various plants, a twig of Rumex crispus or latifolius, another of the rasp, a clipping of boxwood, a piece of packthread, numerous tufts of Poa annua and Stellaria media, two or three mosses, and some other substances. Within this is a more elaborate structure of fibrous roots, tufts of grasses, straws, and some beech leaves, interwoven, and compacted with some tenacious substance. This inner cup is lined or plastered with a very thin but firm coating of what seems to be horse-dung, on the surface of which are spread numerous chips of straw

and slender grasses, but certainly no decayed wood, as some allege to be usually the case. This nest is in diameter three inches and a half, in depth two and a half, its greatest diameter seven inches, and its greatest depth four and a half. This is the nest of a civilized Thrush, it having been found in a hedge in the immediate vicinity of Modern Athens.

One of an auditorcratic Thrush from the Duke of Athol's grounds at Dunkeld, measures seven inches externally, four inches internally, with a depth of two inches and three fourths. It is composed of moss and blades of grass, lined with fibrous roots and stems of grass, its plastering an extremely thin coat of fine mixed mud, intermixed with slender bits of grass sometimes two or three inches in length, but generally very short.

On the 5th May, 1836, I found in a honeysuckle bush in a wood between Haddington and Gifford, the nest of a Thrush, in which the bird was working at the time, completing its interior, in which was a piece of wet rotten wood, quite soft and friable, which it was applying to the walls. Another nest found near Gifford was plastered with horse dung. One brought to me from Melville Woods, on the 3d May 1837, by my son, who found in it five eggs, is composed externally of twigs, straws, and stems of herbaceous plants; its inner cup of a few slender twigs of trees, stems and leaves of grasses, oak-leaves, and a large proportion of mosses, interwoven and agglutinated, but without mud. The lining, which is not thicker than two-twelfths of an inch at most, is certainly composed entirely of fragments of rotten wood and other vegetable substances, without any mud, clay, or dung. Its internal diameter at the mouth is three inches and a half, but below the mouth four inches, the depth two and a half. In all the specimens which I have examined, the mouth of the inner cup is contracted and firmly woven.

The eggs are generally five, but vary from four to six, of a regular or broad oval form, bright bluish-green, with scattered spots of brownish-black, of a roundish form, and more numerous at the larger end. They vary considerably in size, the largest in my collection measuring ~~thirteen~~ four ten-twelfths by ~~nine~~ ten and a half, the smallest eleven ~~and a half~~ by eight ~~and a half~~ twelfths. They are deposited in the end of April, sometimes so early as the beginning of that month, and sometimes not until May. The young I have found abroad from the twentieth of April to the middle of June. Another brood is generally reared in the season.

I have one of the smaller size from the same nest as one thirteen and a half twelfths.

Mr Weir, to whom the reader of these volumes is indebted for so many curious and interesting observations relative to the

habits of our native birds, has favoured me with the following, having reference to the present species:

"Boghead, 16th December, 1837.—In Mr Mudie's Feathered Tribes of the British Islands, a work published so recently as 1834, I was astonished at finding the following notification with respect to this bird:—"When collecting food for their young, the birds carry it not in the bill but in the stomach." If in England the Thrushes carry food to their young in their stomachs, I can affirm that in this neighbourhood they are not accustomed to do so.

"At the distance of nine feet from a Thrush's nest, which was built in an old wall, I erected a hut with some branches of spruce and Scotch fir, and took possession of it on the morning of Thursday the 8th of June 1837, at a quarter past one o'clock, for the purpose of making observations on the habits of these birds. At half-past two o'clock they commenced feeding their brood. From that time until four o'clock they fed them fourteen times. From four to half-past five o'clock they fed them twenty-two times. As one of the young birds was dressing its feathers, it lost its balance, and fell on the ground. No sooner did the old ones perceive it, than they set up the most doleful lamentations. I replaced it in the nest. Having seen me return to my retreat, they would not feed their young until I came out. I accordingly went home for my boy, who, after I had gone in again, carefully concealed the entrance. His departure attracted their notice, for, after having followed him to a considerable distance, they returned, and without suspicion commenced their labour. From half-past five until seven o'clock they fed them twenty-four times. From seven to eight o'clock they fed them sixteen times, and from eight to nine o'clock eleven times. By this time I was so benumbed with cold, for it blew boisterously from the east, and tired with remaining in the same posture, that had I not on the preceding evening made a resolution to continue my task, as the birds were ripe, I would in all probability have relinquished it. I was also annoyed by the visitation of Morpheus, who again and again closed my eyelids, and nearly lulled me into repose. Between nine and ten o'clock I kept them out of their nest, to

see if during the succeeding hour, they would feed their young ones more frequently. This however appeared to make but little difference. From ten to eleven o'clock they fed them ten times, and from one to two o'clock eleven times. From two to three o'clock they fed them eight times, and from three to four o'clock six times. From four to five o'clock they fed them five times; from five to six o'clock six times; and from six to seven o'clock twelve times. From seven to eight o'clock they fed them thirteen times, and from eight to half-past nine o'clock seventeen times. They now ceased from their labours for this day, after having fed their brood two hundred and six times.

"In the forenoon and part of the afternoon, they frequently stretched out the wings of the young birds, and with their bills one would have thought that they sometimes trimmed almost every one of their feathers. In keeping their young ones clean they are uncommonly careful. As a proof of this, I ordered my servant boy to rub the head and back of two of them with soft cow dung. Upon coming in to their nest, they immediately perceived it, and seemed much enraged. They however set to work, and did not desist until they had completely removed it. For this purpose they made use of dry earth, which in the operation appeared to me to assist them greatly.

"Their food in the morning consisted principally of snails and slugs. They sometimes brought to their young one large worm, at other times three and four worms. As for some weeks past there had been a severe drought, the worms which they caught in the middle of the day were smaller and in less quantities than those which they procured in the morning and evening.

"During this day the Thrushes swallowed almost the whole of the *droppings* of their young. As from personal observation I had until now been ignorant of this circumstance, and did not recollect to have seen it mentioned in any book which I had perused, I was determined to be more fully convinced of its truth, and accordingly next day put a female out of her nest, in which she was sitting upon four well-feathered young ones. In half an hour she returned, and after having fed them, stood until they ejected their droppings, which she immediately

swallowed, and then, without flying off, sat down upon them an hour and a half. A short time after this I observed her repeat the same thing. In farther confirmation of this curious fact, I shot a male the moment after he had swallowed the droppings, and upon dissection they were found deposited in his stomach.

" They are so exceedingly acute of hearing, that the least motion which I made attracted their attention; and I am confident that, had it not been a very stormy day, I should not have succeeded in my observations.

" In erecting their nests Thrushes are sometimes very expeditious. On Thursday morning, the 15th of June 1837, a pair began to build in an apple tree in my garden. On Friday afternoon the nest was finished, and on Saturday morning, the 17th, the first egg was laid in it, although the plaster in the inside was very wet. On Wednesday the 21st the female began to sit on five eggs, and on Monday the 17th of July, the young ones flew out of their nest.

" Thrushes are sometimes very tame. Although I have put my head within a few inches of their nest, the female remained upon her eggs without shewing any symptoms of uneasiness; and when the young ones were nearly ripe, I have stood within a few yards of her whilst she was feeding them.

" In the inside of the barn of Bathville Farmhouse, about a mile west from my residence, in the middle of June 1833, a pair of Thrushes built their nest on the end of the shaft of a thrashing-machine, which had been set up against the wall, and there brought up five young ones. So familiar did they become, that when the children put down bread to them, they immediately picked it up, and gave it to their brood.

" Wishing to know how soon Thrushes would build after having been deprived of their young, I took four ripe ones out of a nest, on Tuesday the 6th of June 1837. Having caught the female, I pulled the feathers out of her tail, and set her at liberty. On Wednesday, the 21st of June, I discovered her sitting upon four eggs, of which I deprived her, and on Monday the 8th of July she again had a nest with eggs. I allowed her to bring up her family unmolested.

" The feeling of tenderness which these birds manifest toward

the young of other birds, has been displayed in several very striking instances. I have now in my possession a male Thrush, which when it was six weeks old, brought up a brood of half-fledged larks. What is still more remarkable, he with the most tender care and anxiety fed a young Cuckoo, which had been taken out of a Titlark's nest in Pottishaw Moss. No sooner however had he taught this cruel bird to feed itself, than it requited its benefactor with harshness and ingratitude. Of the least particle of food it would scarcely allow him to partake. With it he had several very severe engagements; and so quarrelsome did the Cuckoo become that it deprived him of a great number of his feathers, so that I was at length obliged to put them in separate cages."

Young.—The young when fledged have the bill of the same colours as the adult, but lighter; the iris brownish-black; the feet pale flesh-colour, anteriorly tinged with blue, the heel yellow, and the sole of a brighter yellow than in the adult; the claws brown tinged with blue. The general colour of the plumage above is brownish-olive, the head tinged with reddish-brown, the rump with grey; all the feathers of the head with a slight central streak of ochre-yellow, those of the back more decidedly marked in the same manner. The smaller wing-coverts are largely streaked and tipped, and the secondary coverts are tipped with ochre, and the outer webs of the quills and wing-feathers generally tinged with the same. The colour of the lower parts as in the adult, the yellow of the neck brighter, and the spots darker. The young bird is easily distinguished from the old by the greater looseness of the plumage, and especially by the ochre streaks and spots of the dorsal and alar feathers.

Progress toward Maturity.—After the first autumnal moult the plumage is complete. As the bird advances in age, the buffy tints of the fore-neck and sides fade; but the other changes are hardly perceptible. I have seen individuals, apparently old, in which the yellow of the lower parts had entirely disappeared.

6. TURDUS ILIACUS. THE ~~RED-SIDED~~ THRUSH, ~~OR REDWING~~.

Redwing

WIND THRUSH. ~~SWINEPIPE~~. Fel.



Fig. 133.

Turdus iliacus. Linn. Syst. Nat. I. 292.
Turdus iliacus. Lath. Ind. Orn. I. 329.
Redwing. Mont. Orn. Dict.
Merle Mauvis. Turdus Iliacus. Temm. Man. d'Orn. I. 165.
Redwing. Merula iliaca. Selb. Illustr. I. 165.
Turdus iliacus. Redwing. Jen. Brit. Vert. An. 100.

Upper parts deep hair-brown, inclining to olive; a blackish-brown spot before the eye, a large whitish band over it; secondary coverts tipped with greyish-white; fore-part of neck and breast white, with longitudinal streaks of blackish-brown and pale brown; middle of the sides and lower wing-coverts light red.

Male.—In form and colour the Redwing bears a great resemblance to the Song Thrush, from which however it may readily be distinguished at a distance by its having a broad whitish conspicuous band over the eye, and at hand by the large red patch on its sides, and the more elongated and generally paler spots on its lower parts. It is smaller, and proportionally more slen-

der than the Song Thrush. Its bill is of the same form but stouter, its outlines more convex. The œsophagus is three inches and a quarter in length, of nearly uniform diameter; the proventriculus measures five-twelfths across. The gizzard is oblong, compressed, an inch and a quarter in length; its muscular coat thin, the right tendon much larger, the cuticular lining rugous. The intestine is eighteen inches long, at its upper part five-twelfths in diameter, and gradually diminishing to two and a half twelfths; the cœca cylindrical, three-twelfths long, and one inch distant from the extremity.

The nostrils are elliptical, a twelfth and a half in length; the eyes of moderate size, their aperture two-twelfths; that of the ear three-twelfths. The feet are stouter than those of the Song Thrush, and the claws much longer; in other respects they are similar.

The plumage is soft, rather blended, slightly glossy, the feathers oblong and rounded; those of the loral space and throat bristle-pointed; a few strong bristle-feathers along the base of the upper mandible. The wings are rather long, of eighteen quills; the first extremely small, the fourth longest, the third little shorter, the second and fifth about equal; the outer primaries tapering but rounded, the third, fourth, and fifth cut out on the outer web towards the end, the rest and the secondaries broadly rounded with a minute tip. The tail is of ordinary length, even, the feathers rather narrow, and rounded, but suddenly tapering to a point.

The bill is brownish-black above, and on the end of the lower mandible; its basal half, and the edges of the upper orange-yellow. The iris is brown. The tarsi are pale flesh-coloured, as are the toes, which are tinged with brown, the claws dusky, but orange beneath. The general colour of the plumage of the upper parts is deep hair-brown inclining to olive, darker on the head, paler on the rump. The quills are deep brown, their outer webs yellowish-brown; some of the secondary coverts and the three last secondary quills are tipped with greyish-white. The tail is wood-brown, the outermost feather with a white spot on the inner web at the end. The loral space is blackish-brown. From the nostril over the eye, and extending

to the occiput, is a broad band of yellowish-white ; the feathers of the eyelids whitish ; those of the cheeks dark-brown streaked with brownish-white ; a band of yellowish-white from the lower mandible halfway down the neck. The sides and fore-part of the neck are white, tinged with yellow, each feather with an elongated terminal and central brownish-black spot. On the breast and sides these markings become pale brown. The middle part of the breast and abdomen is greyish-white ; the lower tail coverts are yellowish-white, more or less streaked with brown. The sides and lower wing-coverts are light red, the inner webs of the quills toward the base tinged with the same colour. The tibial feathers are pale greyish-brown.

Length to end of tail $8\frac{3}{4}$ inches ; extent of wings 14 ; bill along the ridge $\frac{7}{12}$, along the edge of lower mandible 1 ; wing from flexure $4\frac{1}{2}$; tail $3\frac{15}{12}$; tarsus $1\frac{2}{12}$; first toe $\frac{6}{12}$, its claw $\frac{6}{12}$; second toe $\frac{7}{12}$, its claw $\frac{4}{12}$; third toe $\frac{10}{12}$, its claw $\frac{5\frac{1}{2}}{12}$; fourth toe $\frac{7}{12}$, its claw $\frac{4\frac{1}{2}}{12}$.

Female.—There is hardly any perceptible difference in colouring ; the yellow of the bill is less rich, the markings on the neck are less black, and the red of the sides and wings somewhat fainter. The size is also a little less.

Length to end of tail $8\frac{1}{4}$; extent of wings $13\frac{1}{2}$; wing from flexure $4\frac{1}{2}$; tail $3\frac{2}{12}$; bill along the ridge $\frac{7\frac{1}{2}}{12}$; tarsus $1\frac{2}{12}$; middle toe and claw $1\frac{5}{12}$.

Variations.—White and variegated individuals are said to have been observed ; but the only remarkable variations that have come under my notice refer to size.

Length.....	$8\frac{3}{4}$	$8\frac{3}{4}$	$8\frac{1}{2}$	$8\frac{3}{4}$	$8\frac{1}{2}$	$8\frac{1}{2}$	$7\frac{3}{4}$
Extent.....	$14\frac{1}{4}$	$14\frac{1}{4}$	14	$14\frac{1}{12}$	14	14	$13\frac{1}{4}$
Bill.....	$\frac{7}{12}$	$\frac{7}{12}$	$\frac{7\frac{1}{2}}{12}$	$\frac{7}{12}$	$\frac{7}{12}$	$\frac{6}{8}$	
Wing.....	$4\frac{1}{4}$	$4\frac{1}{2}$	$4\frac{1}{2}$	$4\frac{1}{2}$	$4\frac{1}{2}$		
Tail.....	$3\frac{7}{12}$	$3\frac{5}{12}$	$3\frac{5}{12}$	$3\frac{1}{2}$			
Tarsus.....	$1\frac{2}{12}$	$1\frac{2}{12}$	$1\frac{2}{12}$	$1\frac{2}{12}$	$1\frac{2}{12}$	$1\frac{1}{8}$	
Middle toe.....	$1\frac{2}{12}$	$1\frac{2}{12}$	$1\frac{2}{12}$	$1\frac{2}{12}$	$1\frac{5}{12}$	$1\frac{1}{4}$	

Habits.—The Red-winged Thrush arrives in the northern and eastern parts of Scotland in the end of October or the beginning of November. The individuals remain in flocks during the winter and spring, and in open weather resort to the fields, where they search for worms and grubs. When on the ground, the Redwing may be observed to stand for a while motionless, its wings slightly drooping, its tail horizontal or a little raised, until its attention is drawn by some symptom of life, when it hops briskly up to the spot, and if it has observed an earthworm, it pecks with its bill until it obtains a hold of its prey, which it drags forth, breaks into pieces, and swallows. It is interesting to observe a flock of these birds scattered over a meadow, all proceeding against the wind, some standing in the observant attitude characteristic of the genus, others hopping briskly towards the objects that have attracted their attention, and here and there one vigorously attacking a worm, and mining it out, or tugging it from the ground. It does not seem to eat the animal of the common Helices, as the Song Thrush does, nor does it resort to bushy places or under hedges, but keeps in the open fields, avoiding the vicinity of walls. When the ground is covered with snow, the Redwings betake themselves to the holly and hawthorn bushes, of which they eat the fruits, and when these fail, should the frost continue, they settle about brooks and springs in meadows. On such occasions they are destroyed in great numbers, for although they fly off when a shot is fired, they soon return. They are at all times shy and suspicious, and under ordinary circumstances do not permit a nearer approach than eighty or a hundred yards.

Their common note is a rather harsh scream; but in fine weather they often while perched on the trees sing in a very pleasing manner, with a subdued voice; but I believe they never sing with us so as to exert their whole vocal powers. They fly in loose flocks, sometimes mingling with the Fieldfares, and even the Missel Thrushes, but only temporarily, for the flight of all these species is somewhat different. When disturbed in a field, they either perch on the neighbouring trees, or fly off to a distance. Their flight is rapid, rather high, and little undulated, being performed by series of flappings, with short inter-

vals, during which they descend a little. When wounded, they endeavour to run off, scream loudly, and on being seized, peck at the hand. Under similar circumstances the Song Thrush, which is the gentlest of all our species, is generally silent, and does not attempt to bite, but submits quietly to its fate.

Flocks are often observed to remain during the greater part of the season in the same neighbourhood, although sometimes they suddenly disappear. It is not until the end of April, or the beginning of May that they take their final departure for the season; and in the island of Harris I have seen individuals remain so late as the 25th of May, although I never observed one in July or August, and should not have supposed that any breed there, had not Mr Bullock stated that he had found a nest in the neighbourhood of Rodill. According to Temminck and other writers, they pass the summer in the northern countries of Europe, preferring bushes and thickets in the neighbourhood of marshes.

The flesh of this species is perhaps inferior to that of the Song Thrush and Fieldfare, but it is excellent notwithstanding, and by no means bitter, as some have pretended.

Mr Hewitson (Mag. of Zool. and Bot.) states that in the course of his journey in Norway "the Redwing was but seldom seen, and then perched upon the summit of one of the highest trees, pouring forth its delightfully wild note. It was always very shy, and upon seeing our approach would drop suddenly from its height, and disappear amongst the underwood. Its nest, which we twice found with young ones (although our unceasing endeavours to obtain its eggs were fruitless), was similar to that of the Fieldfare, but nearer the ground. The Redwing is called the nightingale of Norway, and well it deserves the name."

Turdus Whitei. White's Thrush.

~~TURDUS VARIUS. THE VARIEGATED THRUSH.~~

Turdus varius. Horsfield, Zool. Researches in Java.
Turdus Whitei. White's Thrush. Eyton, Rarer Brit. Birds, 92.
Turdus Whitei. White's Thrush. Yarr. Brit. Birds. I. 164.

Upper parts yellowish-brown, lighter behind, lunulated with brownish-black; loral space and throat white; sides and lower fore-part of the neck, breast and sides, yellowish-white, lunulated with brownish-black; wing of moderate length, the second and sixth quills equal, the fourth longest, but the third and fifth nearly equal; tail even; bill thirteen-twelfths of an inch long; tarsus of the same length.

Several species of Oreocincla, the determination of some specimens obtained in England. Turdus lunulatus of New Holland is considered as satisfactorily disposed of. Turdus varius of Java, however, agrees in most respects with that accurately named T. Whitei by Mr. Eyton.

~~Adult.~~ The following description of ~~this beautiful Thrush~~ is taken from a specimen from Java, selected as exhibiting the peculiar characters of the species in the highest degree of perfection. The form, in as far as may be guessed from a stuffed skin, is similar to that of the Song Thrush, although the bird is larger and the bill longer. The head is ovate, with the fore part rounded. The bill is large, compared with that of our common Thrushes; the upper mandible with its dorsal outline slightly arcuate, the nasal groove large, the sides beyond it sloping and convex, the ridge narrow, the tip slender, but obtuse, with a distinct notch; the lower mandible with the angle rather long and narrow, the sides erect at the base, the dorsal outline straight, the tip narrow; the gape-line straight, at the end a little decurved. The feet are of moderate size; the tarsus of ordinary length, compressed, with a long anterior plate and three scutella; the first toe very large, with ten, the second with eight, the third with eleven, the fourth with twelve scutella; the lateral toes equal. The claws rather large, moderately arched, much compressed, laterally grooved, acute.

The plumage is full, soft, and blended, although apparently imbricated on account of the black tips of the feathers, which

are oblong. The wings are of moderate length, of seventeen quills; the first very small, curved a little inwards, an inch and a quarter in length, the second of the same length as the sixth, and three-twelfths of an inch shorter than the third, which is a twelfth shorter than the fourth, the fifth scarcely exceeded by the latter. The tail is of moderate length, even, the outer feather being only one twelfth of an inch shorter than the longest.

The upper mandible is dusky brown, blackish at the base, but with the basal margin pale; the lower mandible is pale-brown, at the base lighter. The tarsi are pale yellowish-brown, the toes a little darker, the claws pale. The general colour of the upper parts is yellowish-brown, each feather tipped with black in a narrow semilunar form. The smaller wing-coverts are similar, but those of the first row are dusky, with a large triangular pale ochre-yellow spot at the end; the alular feathers are light yellowish-brown, slightly tipped with black; the primary coverts are externally light yellowish-brown, their extremity black, which forms a conspicuous short bar on the wing; the secondary coverts are dusky, with their outer margin yellowish-brown, their tip yellowish-white. The quills are light yellowish-brown on the outer web, umber-brown on the inner, the tips of the secondaries especially pale, and a large portion of the inner web of all excepting the outer, white, that colour however not apparent. The four middle tail-feathers are yellowish-brown, darker at the end, and slightly tipped with whitish; the next three on each side much darker, with more white on the tip, the outer much paler on the outer web, and white on the inner toward the end. The loral space and feathers margining the eyelids are nearly white, the basirostral bristles dark brown; the throat is white, a narrow blackish band proceeds from the lower mandible downwards; the sides of the head and neck, the lower part of the latter, and the rest of the lower parts white, each feather tipped with a semilunar band of black, broader than those of the dorsal feathers, the lower part and sides of the neck tinged with red; the middle of the abdomen unspotted, and the lower tail-coverts with very slight dusky markings.

The brownish-yellow of the back comes forward on the side at the shoulder. The axillar feathers are white, with the tips black; the smaller wing-coverts white, the larger dusky; the white band on the inner webs of the quills conspicuous beneath; the under surface of the quills and tail feathers, brownish-grey.

Length to end of tail $10\frac{3}{4}$ inches; bill along the ridge $1\frac{1}{12}$, along the edge of lower mandible $1\frac{4}{12}$; wing from flexure $5\frac{5}{12}$; tail $3\frac{1}{12}$; tarsus $1\frac{1}{12}$; first toe $5\frac{1}{2}$ twelfths, its claw $5\frac{1}{2}$ twelfths; second toe $\frac{6}{12}$, its claw $\frac{3}{12}$; third toe $\frac{10}{12}$, its claw $\frac{4}{12}$; fourth toe $\frac{6}{12}$, its claw $2\frac{1}{2}$ twelfths.

Another individual, also from Java, aud presented to the Museum of the University of Edinburgh, by the East India Company, is precisely similar in colouring, but differs a little in the wings and tail; the first quill being an inch and a quarter long, the second four and a half twelfths shorter than the third, the third and fourth equal, the fifth scarcely shorter. The tail is much rounded, the lateral feathers being nine-twelfths of an inch shorter than the longest, and four-twelfths shorter than the next, which is three-twelfths shorter than the third.

Length to end of tail $10\frac{1}{2}$ inches; bill along the ridge 1, along the edge of lower mandible, $1\frac{3}{12}$; wing from flexure $5\frac{4}{12}$; tail $4\frac{1}{4}$; tarsus $1\frac{2}{12}$; first toe $5\frac{1}{2}$ twelfths, its claw $5\frac{1}{2}$ twelfths; third toe $\frac{1}{12}$, its claw $\frac{5}{12}$.

These specimens obviously belong to the species described and figured by Dr Horsfield in his Zoological Researches in Java. He states that "it inhabits the thick forests which cover the mountain Prahu, and, as far as my observations extend, it never leaves a region between 6 and 7000 feet above the level of the ocean. On this circumscribed region it is extremely abundant. Its food consists chiefly of insects and worms. It is easily surprised by the natives. During my last visit to this mountain, I obtained in the course of a few days a great number of individuals. I never found it in any other part of Java."

To this species also belongs an individual in the possession of Mr Bigge of Hampton Court, which, according to Mr Yarrell, "is said to have been shot in the New Forest, Hampshire, by one of the forest-keepers, who parted with it to a bird-pre-

server at Southampton, of whom Mr Bigge bought it for his own collection." Mr Yarrell states that it "appears to be identical with Dr Horsfield's Thrush from Java, and also with specimens from Australia." It is "eleven inches and a half long; the wing five inches and four-eighths; the first feather short; the second as long as the sixth; the third, fourth, and fifth of equal length, and the longest in the wing."

As nothing is known respecting the geographical distribution of this species beyond its occurrence in Java and Australia, it must seem very strange that an individual of it should appear in England. As I think there can be no doubt, from the description of that individual, of its identity with Turdus varius, I am obliged to relinquish the name of "White's Thrush, Turdus Whitei," given to it by Mr Eyton.

Another Thrush, in almost every respect similar, but differing somewhat in the form of the wing, has, according to Mr Yarrell, been shot by the Earl of Malmesbury on his estate at Heron Court, near Christchurch, in January 1828. The same eminent naturalist states that this bird agrees with a Hamburgh specimen figured and described by Mr Gould under the name of "Turdus Whitei," which, if it really be distinct from Turdus lunulatus of New South Wales, it ought to retain. But as I cannot speak decidedly on the subject, not having seen the European specimens alluded to, I must refer my reader to the account given of it by Mr Yarrell in his excellent "History of British Birds," a work certainly far superior to any that has hitherto appeared in this country. That gentleman has been so kind as to inform me, in answer to my inquiry, that "from the differences found on a comparison of Lord Malmesbury's specimen with those from Java in the collection of the East India Company, (he is) induced to consider Turdus varius of Dr Horsfield as distinct from White's Thrush. Two or three specimens," he adds, "have turned up lately, which are also considered distinct."

Turdus aurigaster. Gold-vented Thrush.
after which Genus II. Petrocincla.
then Genus III. Accentor.

Family X. ALAUDINÆ. Alaudine Birds.

LARKS AND ALLIED SPECIES.

The family of Alaudinæ is composed of species of which the average size is that of our Sky Lark ~~or Corn Bunting~~. The genera which enter into its composition are Melanocorypha, Macronyx, Myrafra, Certhilauda, Alauda, Anthus, and a few others. In Britain there are representatives of the last two genera, which some ornithologists however are pleased to divide into five or six. The transition from the Turdinæ to the Alaudinæ is direct, the genus Seiurus connecting Turdus with Anthus, which again is so intimately allied to Budytes, and that to Motacilla, that a separation of the Alaudinæ and Motacillinæ on the one hand is as arbitrary as that of the former from the Turdinæ on the other. In some of the Alaudinæ, the bill is scarcely different from that of many Turdinæ, while in others it is almost precisely similar to that of the genus Budytes; but the members of this family may always be readily distinguished by the great muscularity of their gizzard, their elongated and but slightly curved claws, their moderate emarginate tail, and the form of their wings, of which the inner secondaries are much elongated.

The bill is rather short, or of moderate length, stout in some of the genera, slender in others, somewhat conical, compressed towards the end; the upper mandible has its dorsal outline sloping and slightly convex, its tip narrow and a little deflected, the edges sharp and overlapping, the notches generally obsolete, never large; the lower mandible has the angle of moderate length and narrow; the dorsal outline ascending and nearly straight, the edges sharp and slightly inflected, the tip acute; the gape-line straight. Both mandibles are moderately concave, with a medial prominent line, the upper generally with

two additional lines. The tongue is slender, emarginate, and finely papillate at the base, flat, thin-edged, with the tip slit and bristly. The œsophagus is of uniform diameter, without dilatation, in which respect it differs entirely from that of the Deglubitores, to which most authors have referred this group; the proventriculus oblong, with simple oblong glandules. The stomach is a powerful muscular gizzard, roundish, compressed, its lateral muscles very large, as are their radiated tendons; its cuticular lining tough and rugous. The intestine is short and of moderate width, its duodenal portion wider; the rectum with an oblong dilatation; the cœca very small and cylindrical. See Pl. XIII, Fig. 4, and Pl. VIII, Fig. 5.

The eyes are of moderate size; the eyelids feathered, with a narrow, bare, crenate margin. The external aperture of the ear large, transversely oval. The nostrils elliptical or oblong in the lower and fore part of the nasal depression, which is rather large, and feathered except on its anterior portion.

The legs are of moderate length, or rather long, and slender; the tarsus compressed, anteriorly covered with eight scutella, sharp behind, with two longitudinal plates. The toes slender, compressed; the first longer, scarcely stouter, generally with a very long, straightish, compressed, tapering claw; the second and fourth about equal, the third much longer; their claws longish, arched, slender, much compressed, laterally grooved, and tapering to a fine point, that of the outer toe generally shorter than that of the inner.

The plumage is generally soft and blended; the feathers ovate, of loose texture, with a long slender plumule. The wings are rather long, broad, and semicordate; the quills eighteen, the first extremely small or entirely wanting; the next three nearly equal and longest; the secondaries very long, emarginate, excepting the inner three, which are tapering, and of which one is so elongated as nearly to equal the longest primaries. The tail, of twelve feathers, varies in length, being in some moderate, in others long, and is more or less emarginate.

The skeleton is of delicate structure, but so similar to that of the Passerinæ ~~described in Vol. I, p. 320~~, and that of the

Turdinæ, ~~Vol. II, p. 67~~, that it requires no separate description. The skull, however, is smaller than that of the Passerinæ, as are especially the jaws; the sternum shorter, but otherwise similar, and the bones of the feet more slender.

The digestive organs are adapted equally for seeds and insects in the Pipits, while in the Larks the gizzard is more muscular than that of the Deglubitores. All the species feed essentially on worms, larvæ, pupæ, insects, and small mollusca; but the thick-billed species, such as the Larks, especially in winter, eat seeds of various kinds, which they swallow entire, without removing the outer covering, as the Deglubitores always do.

These birds reside chiefly in the open fields, for although some of them perch occasionally on trees, they seldom search for food there. They run with celerity, generally in a half-crouching posture, and differ from the Turdinæ and Sylviinæ in never leaping or hopping. Their long straightish claws seem to be intended for the purpose of enabling them to walk more easily over grass and herbage, and to support themselves in marshy places, to which they resort during frost. Their ordinary flight is rapid and undulated; but they have a peculiar fluttering mode of flying which they perform while singing, and which is peculiarly marked in the Larks, but less perfect in the Pipits. Their song, although pleasing from its cheerful character, is not generally melodious, but in several species is extremely protracted. They nestle on the ground, deposit from four to six spotted eggs, and often rear two broods in the season. They are generally distributed over the country, the Larks preferring the cultivated districts, the Pipits pastures and meadows. Being among the species most commonly met with in the fields and pastures, the Sky Lark attracts attention by its song and peculiar flight. That of the Pipits, although rather monotonous, is pleasing to the wanderer who travels over our wild moors and solitary valleys, or searches our rocky coasts.

The connections of the family are so obvious and direct that they may here be adduced in illustration of the general principles stated in the introduction to the first volume of this work. The thick-billed species, such as Melanocorypha Calandra and tatarica, and even Alauda arvensis and alpestris, evidently

approach the Passerinæ and especially the Emberizinæ. In colour, Emberiza Miliaria and Alauda arvensis are almost precisely similar, and the elongated hind-claw of the larks has its analogue in that of the Lark-Buntings. Macronyx flavicollis immediately calls to mind the American "Meadow Lark," Sturnella, which belongs nearly as much to the Alaudinæ as to the Sturninæ. Seiurus auricapillus and aquaticus are almost as much Pipits as Thrushes. The Pipits themselves are so intimately connected with the Larks, that the two genera were until of late confounded, and the difference between Alauda arborea and Anthus arboreus is generically very slight. A system in which genera so very closely allied as Alauda and Anthus are placed in different families cannot therefore be natural. The Motacillinæ are directly connected with the Alaudinæ, by means of the genus Budytes, which is almost as nearly allied to the Anthi as to the Motacillæ.

SYNOPSIS OF THE BRITISH GENERA AND SPECIES.

GENUS II. ALAUDA. LARK.

Bill short, straight, rather stout, conical, a little compressed, its upper outline slightly convex, the tip acute and destitute of notch; hind claw very much elongated and nearly straight; wings long and broad, the first primary minute or wanting, the next three longest; tail of moderate length, emarginate.

1. *Alauda alpestris. Shore Lark.* Male in winter with the upper parts dusky-brown, the feathers edged with pale red, the lower parts white; a recurved band on the head, and a large patch on the fore-neck, blackish, the first quill obsolete. Male in summer with the bands on the head and neck deep black. Female with the upper parts dusky-brown, the lower greyish-white.

2. *Alauda arvensis. Sky Lark.* Upper parts light reddish-brown, streaked with blackish-brown, the fore-neck light reddish, spotted with brownish-black; an obscure brownish-white band over the eye; the second quill longest.

3. *Alauda arborea. Wood Lark.* Upper parts light reddish-brown, streaked with blackish-brown, the fore-neck reddish-white, streaked with brownish-black, a distinct yellowish-white band over the eye, continuous with a patch of the same on the nape; the fourth quill longest.

4. *Alauda cristata. Crested Lark.*

I.

GENUS ~~II.~~ ANTHUS. PIPIT.

Bill of moderate length, slender, straight, compressed towards the end, its upper outline slightly declinate at the base, very slightly declinato-arcuate towards the tip, which is acute, with a slight notch; hind claw elongated, moderately arched; wings rather long, the first primary wanting, the next three longest, one of the inner secondaries almost as long; tail rather long, emarginate.

1. *Anthus Richardi. Richard's Pipit.* Upper parts olivaceous-brown, spotted with dusky; a streak over the eye, sides of the head, throat, and belly, white; breast and sides reddish-yellow, the former with dusky spots; the tarsi long, the hind claw nearly straight.

1 ~~2.~~ *Anthus pratensis. Meadow Pipit.* Upper parts olivaceous, spotted with dusky; lower brownish-white, anteriorly tinged with red; the neck, sides, and fore-part of the breast marked with ovato-oblong brownish-black spots; the hind claw slightly arched, and much longer than the first joint.

2 3. *Anthus trivialis arboreus. Tree Pipit.* Upper parts olivaceous, spotted with dusky; lower brownish-white, anteriorly tinged with reddish-yellow; the neck, sides, and fore-part of the breast, marked with ovato-oblong brownish-black spots; the hind claw strongly arched, and shorter than the first joint.

4. *Anthus obscurus aquaticus. Shore Pipit.* Upper parts olivaceous, streaked with dusky; lower yellowish-grey, the neck, sides, and fore-part of the breast marked with oblong undecided olivaceous or dusky spots; the hind claw slightly arched, about the same length as the first joint.

Genus II. ALAUDA. Linn. LARKS.

Bill short, straight, somewhat conical, slightly compressed, pentagonal at the base, and nearly as high as broad; upper mandible with its dorsal line deflected and slightly convex, the ridge narrow, the nasal sinus long and anteriorly rounded, the sides convex, the edges sharp and overlapping, without notch, the tip rather acute; lower mandible with the angle extending to the middle, rather narrow and somewhat acute, the ridge ascending and very slightly convex, the sides sloping outwards, convex towards the end, the edges sharp, the tip rather acute, the gape-line straight.



Fig. 134.

The mouth rather narrow; the upper mandible internally with three converging ridges and four grooves; the lower concave with a central ridge; the palate flat, soft, with a central and two lateral prominent lines continuous with those of the mandible. Posterior aperture of the nares linear, having on each side an oblong inclined space covered with conical acute papillæ, and terminating behind in a flap beset with acicular papillæ. Tongue of moderate length, narrow, at the base emarginate and papillate, two of the papillæ much larger, flattened above, with the edges sharp, the tip slit, terminated by two small bristly tufts, the lower surface horny with a deep

central groove. The œsophagus is of moderate width, nearly uniform in diameter, a little contracted at its entrance into the thorax; the proventriculus oblong with oblong glandules. The stomach is a remarkably powerful gizzard, of a roundish form, somewhat compressed. On each side is a large tendon into which are inserted all round the muscular fibres, which pass from the one tendon to the other. On the edges of the gizzard, which are thick and flattened, the fibres are very large and softer. The muscular fibres are also inserted into the subjacent tough coat. The cuticular lining is much thicker and destitute of rugæ opposite the muscles, opposite the tendons thinner, transversely rugous, with rugulæ at right angles to the rugæ. The intestine is of moderate length, rather wide, contracts from the pylorus to half its length, then enlarges for a short space, and again contracts. The cœca are very small and cylindrical. The rectum is at first of the same diameter as the intestine, and gradually dilates to form the cloaca.

The nostrils are elliptical, basal, in the fore and under part of the broad and short nasal membrane, anteriorly marginate, open. Eyes of moderate size; eyelids feathered, and having a narrow bare crenate margin. External aperture of the ear large, roundish.

The general form is rather full; the body ovate; the neck rather short; the head oblong, of moderate size. The feet are of moderate length; the tibia slender; the tarsus slender, compressed, with eight or nine anterior scutella, and about the same number behind. The toes free, slender; the first about the length of the second, which is slightly longer than the fourth, the third considerably longer;—that is, without including the claws. The first claw is extremely long, being about double the length of the first joint, much compressed, slender, tapering to a point, very slightly arched; the rest rather long, slender, compressed, acute, slightly arched.

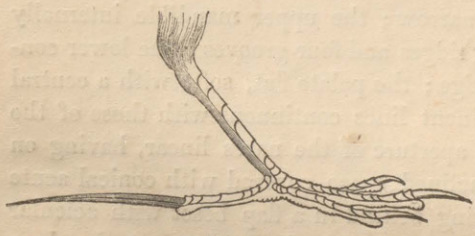


Fig. 135.

The plumage is ordinary, on the lower parts blended; the general form of the feathers ovato-oblong; a long slender plumule of few barbs. Frontal feathers encroaching on the nasal membrane and partially concealing the nostrils; those on the upper part of the head rather long; bristle-feathers at the base of the upper mandible. Wings long, broad, when extended semicordate. Primaries ten, the first minute, the next three longest; the first five rounded, the rest emarginate; secondaries eight, the outer emarginate, the inner tapering, the sixth much elongated. The tail is rather long, straight, deeply emarginate, of twelve rather narrow feathers, which taper to a rounded point.

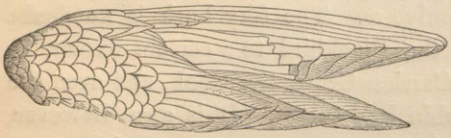


Fig. 136.

The genus Alauda is closely allied on the one hand to Plectrophanes and Emberiza, and on the other to Anthus, which passes into Motacilla. In all these genera the wings are nearly of the same form, but in Anthus and Motacilla the first primary is wanting. In the form of the bill, some Larks very closely resemble certain Thrushes. Alauda arvensis, for example, is very similar to Turdus pilaris in this respect. The Larks and Thrushes also resemble each other in their ordinary flight, although the former have a song-flutter of a very peculiar character. To exhibit in some measure the affinities by which the species of birds are connected, we may take the Sky Lark as a centre of affinities. Its bill has a resemblance to that of the Fieldfare, also to the bill of the Pipits, which is more slender, and to that of the Lark-Buntings, which is thicker. Its œsophagus has no dilatation, and so is more like that of the Pipits, Wagtails, and Warblers, than that of the Emberizinæ or Passerinæ; but its gizzard more resembles that of these latter families. Its feet resemble those of the Lark-Buntings, Pipits, and Wagtails. The upper part of its plumage is extremely like that of the Corn-Bunting; all parts closely resemble that of the Tree and Common Pipits; its lower part shews an affinity to that of the Thrushes. Its wing resembles that of the Pipits and Wagtails, as well as of the Lark-Buntings. Its tail is similar to that of the Corn-Bunting. Its ordinary flight is very like that

of the Redwing and Fieldfare; and its song-flight has some affinity to that of the Titlark. The genus Alauda forms the transition in one direction from the Emberizinæ to the Motacillinæ; but although some of the species are as much granivorous as insectivorous, they are not huskers, for they swallow seeds entire, and have no crop. It certainly belongs more strictly to the ~~order~~ Cantatores, to which I have accordingly removed it, although very many authors have thrust it among their Conirostres or Granivoræ. The Sky Lark is no doubt granivorous; but so is the Blackbird to a certain extent, as well as the Raven, the Carrion Crow, the Rook, and even the Meadow Pipits and Robin Red-breast. It is also, however, vermivorous; and considering its structure, affinities, and habits, we must place it, not among the Conirostres, but in the midst of a group of birds, of which some are more granivorous, others more insectivorous, but almost all have considerable latitude as to their food.

The Larks are generally distributed on the old Continent, and one species occurs in the northern parts of the new. They prefer open places, search the fields, pastures, and marshes for seeds, larvæ, worms, and insects; walk and run, but do not leap like the Deglubitores and many of the ~~Cantatores~~; and have a rather rapid, somewhat undulated flight. Their digestive organs are evidently adapted for seeds and insects, and to aid the action of the gizzard they swallow small fragments of stone or particles of sand. They nestle on the ground, lay from four to six freckled or spotted eggs, feed their young with worms and insects, and generally produce more than one brood in the season.

Some Larks have very thick, and others slender bills. The former might constitute a distinct genus, as might the latter, were slight deviations to be considered as affording sufficient generic distinctions.

~~Four~~ ~~Three species occur in this country~~. One, the Sky Lark, is generally distributed; another, the Wood Lark, has not been met with in Scotland, but is not uncommon in some parts of England. Both species are permanent residents. Of the third, the Shore or Alpine Lark, only a few individuals have been met with, ~~and~~ The Jourth, Alauda cristata, the Crested Lark, a single specimen has been obtained in Ireland; and of fifth, the Short-toed Lark, also a single specimen has been caught near Shrewsbury.

Linn.

5. ALAUDA ALPESTRIS. THE SHORE LARK.

HORNED LARK.



Fig. 137.

Alauda alpestris. Linn. Syst. Nat. I. 289.
Alauda alpestris. Lath. Ind. Orn. II. 498.
Allouette a hausse-col noir. Alauda alpestris. Temm. Man. d'Orn. I. 279.
Shore Lark. Wils. Amer. Orn. I. 85.
Horned or Shore Lark. Alauda cornuta. Swains. and Richards. Faun. Bor. Amer. I. 245.
Shore Lark. Alauda alpestris. Aud. Orn. Biogr. II. 570.
Alauda alpestris. Shore Lark. Jen. Brit. Vert. An. 126.

Male in winter with the upper parts pale brownish-red, streaked with dark-brown; the lower parts white; a recurved band on the head, and a large patch on the lower fore-neck black, but the feathers tipped with reddish-white; the throat and a band over the eyes yellow. Male in summer with the bands on the head and neck pure black; the throat and band over the eyes white. Female with the upper parts as in the male, the lower greyish-white.

Male in Winter.—This beautiful bird resembles the Sky Lark in form, the body being rather full, the neck short, the head of moderate size, the wings and tail long. The digestive

organs, Pl. XIII, Fig. 4, are in all respects similar to those of that species. The tongue is narrow, tapering, sagittate and papillate at the base, its tip lacerated. The œsophagus is three inches long, and of nearly uniform diameter, being destitute of crop. The stomach is a very muscular gizzard, roundish, compressed, nine-twelfths of an inch long, its lateral muscles very large, as are its tendons, its cuticular lining longitudinally rugous, and of a reddish-brown colour, as is usually the case in birds that feed on coleopterous insects. The intestine is seven inches and an eighth in length, and diminishes in diameter from $2\frac{1}{2}$ twelfths to a twelfth and a half, then expands into the rectum, which is one inch long; the cœca cylindrical, two twelfths in length. The tarsus is slender and compressed, its upper scutella rather indistinct; the hind and lateral toes are nearly equal, excluding the claws, of which that of the first toe is extremely elongated, nearly straight,



Fig. 133.

compressed, and tapering to an acute point, the rest rather long, very slightly arched, laterally grooved, and very acute; the first toe has six, the second seven, the third nine, the fourth ten scutella. The plumage is soft and blended, the feathers ovate, with loose margins, and a long slender plumule. There is a longitudinal band of slender, pointed, erectile feathers on each side of the head, over the eye. The wings are long; the first quill obsolete, the third generally longest, the second (which is actually the first) almost as long, and a little longer than the fourth; the inner primaries and outer secondaries emarginate, the inner three elongated and obtuse. The tail is of moderate length, and emarginate.

The bill is greyish-black, the base of the lower mandible bluish-white; the feet and claws brownish-black tinged with grey. The upper parts are pale brownish-red, each feather with its central part dusky brown, excepting on the hind-neck, which is reddish grey, and the upper tail-coverts, which are brownish-red. The wing-coverts are brownish-red, the first row of small coverts and the secondary coverts slightly tipped with whitish. The quills are dusky, edged with brownish-red, the outer with white. The tail feathers are black, the

two middle broadly edged with brownish-red, the outer with an oblique band of white including nearly the whole of the outer web, and the next margined towards the end, and tipped with the same. A pale yellow band from the base of the bill, over the eyes; above it a semicircular band of black, which includes the erectile tufts, but the feathers are edged with light reddish-brown. The loral space and a band below the eye, curving downwards, black, as is a large transverse band on the fore-neck, the feathers margined with whitish. The throat is pale yellow; the anterior part of the breast faintly spotted with reddish-brown; the sides dull brownish-red; the rest of the lower parts white.

Length to end of tail $7\frac{1}{2}$ inches; extent of wings $13\frac{3}{4}$; bill along the ridge $\frac{7}{12}$, along the edge of lower mandible $\frac{9}{12}$; wing from flexure $4\frac{7}{12}$; tail 3; tarsus $1\frac{1}{12}$; first toe $4\frac{1}{2}$ twelfths, its claw $\frac{6}{12}$; second toe $4\frac{3}{4}$ twelfths, its claw $3\frac{1}{2}$ twelfths; third toe $\frac{7}{12}$, its claw $\frac{4}{12}$; fourth toe $\frac{5}{12}$, its claw $\frac{3}{12}$.

Female in Winter.—The female has the upper parts nearly as in the male, the lower greyish-white. The top of the head is slightly streaked with black, but the band on its fore part is very inconspicuous. The wings and tail are as in the male.

Length to end of tail $7\frac{1}{4}$ inches.

Changes.—Like the Snowflake and Lapland Bunting, this species presents a very different appearance in summer, owing to the abrasion of the light-coloured margins and tips of the feathers. A male shot near Cape Wilson, 10th July 1822, was as follows.

Male in Summer.—The upper parts wood-brown, the feathers with pale reddish margins; the lower parts whitish; the throat pale yellow; the forehead and a streak over the eye white; the curved band on the head deep black, as is the lunate patch on the fore-neck; the auriculars blackish. The tail brownish-black, the middle feathers wood-brown, the outer edges of the lateral feathers white. The quills wood-brown.

Length to end of tail $7\frac{1}{4}$ inches; bill $\frac{6}{12}$; tarsus $\frac{7}{8}$.

Habits.—As only a very few specimens of this species have been obtained in Britain, I have no original observations to offer respecting its habits. An individual is recorded to have been shot near Sherringham in Norfolk, in March 1830. Mr Eyton states that another has been killed in Lincolnshire; and Mr Yarrell has "heard of a pair that were obtained together on an extensive down in Kent." According to M. Temminck, the Shore Lark occurs in the north of Europe, Asia, and America, and migrates as far south as some parts of Germany. Mr Audubon has given a detailed account of its habits as observed by himself in Labrador, where it breeds on the high granitic tracts along the shores, placing its nest among the moss and lichens, and rearing a brood of four or five. In the beginning of August they unite into small flocks, and in about a month after proceed southward, to return in the beginning of June. The males sing in the air, performing short excursions for the purpose, and sometimes also on the ground. It feeds on insects, minute shell-fish, blossoms, and seeds, and associates with the Brown Pipit. It thus in its habits, as well as its size and proportions, bears a great resemblance to the Sky Lark, which in winter often associates, in moist or marshy places remaining unfrozen, with the Meadow and Rock Pipits.

Young.—In their first plumage the young have the bill light reddish-yellow, the feet flesh-coloured, the upper parts dark brown mottled with brownish-yellow, the lower parts pale yellowish-grey, the lower part of the neck anteriorly light reddish-brown mottled with dusky.

1. ALAUDA ARVENSIS. *Linn.* THE SKY LARK.

FIELD LARK. COMMON LARK. LAVEROCK. UISEAG.



Fig. 139.

Alauda arvensis. Linn. Syst. Nat. I. 287.
Alauda arvensis. Lath. Ind. Orn. II. 491.
Sky Lark. Mont. Orn. Dict.
Alouette des champs. Alauda arvensis. Temm. Man. d'Orn. I. 281.
Sky-Lark. Alauda arvensis. Selb. Illustr. I. 273.
Alauda arvensis. Sky-Lark. Jen. Brit. Vert. An. 127.

Of both sexes the upper parts light reddish-brown streaked with blackish-brown, the fore-neck light reddish-brown spotted with brownish-black, the sides streaked, the rest of the lower parts dull white; an obscure brownish-white band over the eye; the first quill extremely small and acute, the second longest.

Male.—The Sky Lark, although of a rather elegant form, is not remarkable for the beauty of its plumage, which on the upper parts bears a very intimate resemblance to that of the Corn Bunting. Its song and peculiar flight however have contributed to render it one of the most generally known of our native birds. The body is ovate and moderately full, the neck

short, the head oblong and of ordinary size, the wings and tail long, the feet slender.

The bill is about half the length of the head, rather strong and tapering, a little higher than broad at the base, its gape-line straight, the edges sharp and without notch, the tips a little rounded. The tongue is narrow, sagittiform, nearly flat above, with the tip lacerated. The œsophagus is three inches long, of nearly uniform diameter, when dilated measuring about three-twelfths, when collapsed two-twelfths. The proventriculus is half an inch long, its glandules large and oblong. The gizzard is eleven-twelfths long, nine-twelfths in breadth, its muscles distinct and large, its anterior or left tendon larger, its cuticular lining tessularly rugous excepting on the spaces opposite to the lateral muscles. The pylorus is situated in a deep groove or fissure near the cardiac orifice, on the anterior and right side of the stomach. The intestine is eleven inches and three-fourths in length; its duodenal portion for six inches gradually diminishes from two and a half twelfths to a twelfth and three-fourths, then for a short space enlarges to five-twelfths, and at the cœca contracts to a twelfth and a half. The cœca are cylindrical, two twelfths long, and half a twelfth in diameter. The rectum is an inch and a half long.

The eyes are rather small, their aperture being two-twelfths. That of the ear is broadly elliptical and very large, three-twelfths and a fourth in diameter. The nostrils are small, elliptical, open, but covered by the feathers. The tarsi are slender and compressed, their anterior and posterior scutella indistinct above; the first, second, and fourth toes, excluding the claws, nearly equal, the third much longer. The hind claw is singularly elongated, especially in old birds, the third is much longer than the two lateral; they are all feebly curved, much compressed, laterally channelled, and tapering. On the first toe are six, on the second eight, on the third twelve, on the fourth twelve scutella.

The plumage is soft, with slight gloss, rather compact above, blended beneath. The feathers in general are much curved, ovate, and rounded, with a slender plumule of few filaments. Those about the base of the bill are bristle-tipped, and a series

at the base of the upper mandible have the tip prolonged and decurved. The feathers on the top of the head are a little elongated, oblong, and decurved. The wings are long and broad, the quills very slightly curved; the first quill is only five-twelfths of an inch long; the next three are almost equal, the third being generally longest; the third, fourth, and fifth slightly cut out on the outer web; the second, third, and fourth on the inner. Excepting the first six and the last three, the quills are deeply emarginate; the sixth secondary extends to three-fourths of an inch from the tip of the longest primary. The tail is emarginate, and the lateral feathers are a little shorter than the next.

The bill is dark greyish-brown above and at the point of the lower mandible, yellowish-brown on the edge of the upper mandible, the lower flesh-colour tinged with blue. The inside of the mouth, and the skin at the commissure, are reddish orange. Irides hazel. Feet yellowish-brown, soles oil-green, claws blackish-brown, tip of the hind claw yellowish-grey. The general colour of the upper parts is light reddish-brown, streaked with blackish-brown, the central part of each feather towards the tip being of the latter colour. The quills are chocolate-brown, the second with the outer web brownish-white, the other primaries edged with the same, the secondaries more broadly with reddish-brown, their tips whitish. The first and second rows of coverts are similar. The tail-feathers are of a darker brown, the middle ones broadly edged with light reddish-brown; the outer with its outer web, excepting just at the base, and an oblique portion of the inner web, white, as is the greater part of the outer web of the next, and a slight edging of the third. There is over the eye a pale yellowish-brown streak. The auriculars are tinged with red, and spotted with dusky. The sides and fore part of the neck, with the anterior part of the breast, are light reddish-brown, each feather having a terminal triangular spot of reddish-brown, the upper part of the throat whitish and unspotted. The rest of the lower surface is greyish-white, excepting the sides, which are pale reddish, the feathers having a slight central dusky streak.

Length to end of tail 7½ inches; extent of wings 14¾; wing

from flexure $4\frac{10}{12}$; tail 3; bill along the ridge $\frac{6}{12}$, along the edge of the lower mandible $\frac{8}{12}$; tarsus 1; first toe $\frac{5}{12}$, its claw 1; second toe $\frac{5}{12}$, its claw $\frac{3}{12}$; third toe $\frac{8}{12}$, its claw $\frac{4}{12}$; fourth toe $4\frac{1}{2}$ twelfths, its claw $2\frac{1}{2}$ twelfths.

Female.—The female differs so little from the male in colour, that the same description answers for both. The œsophagus of an individual was three inches long, and on an average a twelfth and a half in diameter. The stomach ten twelfths long; the intestine eleven inches and a half, without remarkable dilatation, but gradually diminishing from two twelfths to one and a half; the cœca cylindrical, a twelfth and a half long. The fœces can readily be squeezed into them, but it is probable that they do not naturally enter, as I have always found them filled with mucus only, and of a pure flesh colour. The females are a little smaller, somewhat more slender, and in a faint degree less deeply coloured; the feathers of the head are also less elongated; but the differences are so slight that I am unable to distinguish a male from a female by any external character.

Length to end of tail $6\frac{10}{12}$ inches; extent of wings 13; wing from flexure $4\frac{5}{12}$; tail $2\frac{7}{12}$; bill along the ridge $\frac{1}{2}$, along the edge of lower mandible $\frac{8}{12}$; tarsus $\frac{11}{12}$; first toe $\frac{5}{12}$, its claw $\frac{8}{12}$; second toe $\frac{5}{12}$, its claw $\frac{5}{12}$; third toe $7\frac{1}{2}$ twelfths, its claw $3\frac{1}{2}$ twelfths; fourth toe $\frac{5}{12}$, its claw $2\frac{1}{2}$ twelfths.

Variations.—In adult individuals the differences in colour are not generally remarkable. In some extremely rare cases the plumage is patched with white, or of a nearly uniform cream-colour, or even pure white. An instance of the latter kind has come under the observation of Mr Weir, who informs me that "during the months of August and September 1835, a most beautiful pure white lark frequented the farm of Tailend belonging to Colonel S. Norvall, Esq. of Boghall. It disappeared about the end of October." Melanism also occurs, but only, I believe, in caged birds.

A beautiful cream-coloured individual, shot near Aberdeen, was given to me by my pupil, Mr William Cheyne, in 184-

Habits.—There is perhaps none of our native birds that

has attracted so much attention as the Sky Lark, nor any that has been so much celebrated by poets and sentimental writers. It might be a pleasant task to cull from our choicest authors the flowers of poesy which derive their beauty from the gentle influence of this sweet songster of the fields; but I must leave it for those who love to study nature from books, as I find it more profitable to listen to the cheering notes of the ~~Lark her~~-self, to gaze upon ~~her~~ as ~~she~~ floats flutteringly high up in the blue sky, to watch ~~her~~ descent, and run up to inspect ~~her nest among the green grass, while her beloved young ones are rejoicing at her arrival~~.

Towards the end of autumn, the Sky Larks congregate in large straggling flocks, generally keeping by themselves, although occasionally mingling with small birds of the Passerine and Bunting families. In open weather they frequent the stubble and ploughed fields, where they pick up the seeds of oats, wheat, barley, polygona, and other plants. Like the Deglutitores and many of the Cantatores, they use a large quantity of sand and gravel, consisting chiefly of grains of quartz, to aid the process of digestion. I believe their food during the winter consists almost entirely of seeds, although remains of insects may now and then be found in their gizzards. At this season they employ only their ordinary flight, which bears some resemblance to that of the Fieldfare, being performed by slight undulations, and several consecutive flaps of the wings, with short alternate cessations. They generally hover over a field, or fly about in curves, before they alight, which they do in rather an abrupt manner, but not so rapidly as the Corn and Yellow Buntings. On alighting they disperse, and move about, not by leaps, like most small birds, but by an alternate action of the feet, in a half-gliding half-startful manner, keeping their legs bent and their breasts consequently close to the ground. When in any degree alarmed, they crouch, draw in their neck, and remain motionless until the object of their apprehension has disappeared. Should a person walk up to a flock, he may get quite close to it before the birds think it necessary to rise; and on such occasions they do not all take flight at once, a few here and there rising in succession. In-

deed, unless the ground be all gone over, many will remain and allow their companions to fly off. Their movements while rising are rapid and wavering, so that until they are at some distance it is difficult to shoot them. Owing to their habit of crouching, it is by no means easy to perceive them while on the ground, especially if they are among stubble; and as their motions are quick, they traverse a considerable space in a short time. When there is snow on the ground, they betake themselves to corn-yards, and search the tops of the stacks for seeds; but in frosty weather, when the ground is clear, they prefer settling on the spaces between or around the stacks. If disturbed and forced to fly off, they do not, like the Buntings, Chaffinches, and Sparrows, with which they then associate, perch on the neighbouring trees or walls, but remove to a distance. During this season, they merely utter a short chirping note as they fly, although occasionally a bright day even so early as January will elicit their song.

In the beginning of March, or earlier if the weather is fine, they separate and pair. At this period, the males often fight, chiefly in the air; and now their song commences, to be continued until the middle of autumn. I have heard larks in full song on the 13th of February, in Fifeshire. This species is perhaps that which, excepting the White-throat and Blackbird, begins to sing earliest in the morning. On the 12th of March 1835, while on an excursion along the coast, I was greeted at half-past five, between Portobello and Musselburgh, with the full song of the Lark, followed shortly after by those of the Robin and Blackbird, and the harsh cry of the Partridge. In the island of Harris, about the middle of June, in 1820, when on my way to the summit of a hill to see the sun rise, I heard the Lark at half-past one, and soon after the Snipe and Corn Crake. It ceases however in the evening much earlier than several of our songsters, especially the Blackbird, Thrush, and Robin.

The Song of the Sky Lark is familiar to most persons, even those who in cities have exchanged the love of nature inherent in humanity for the love of gain, fashion, and vicious excitement; but were it not, it would be as difficult for me to describe it as it would be for a musician to imitate it. Some-

times the Lark sings on the ground, perched on a clod, or even crouched among the grass, but generally in commencing its song, it starts off, rises perpendicularly or obliquely in the air, with a fluttering motion, and continues it until it has attained its highest elevation, which not unfrequently is such as to render the bird scarcely perceptible. Even then, if the weather be calm, you hear its warble coming faintly on the ear at intervals. It has been alleged that the Lark ascends in a spiral manner, but my observation does not corroborate the statement. In rising, it often passes directly upward, but with the body always horizontal or nearly so, then moves in a curve, and continues thus alternately, but without a continued spiral motion. At first, the motion of the wings is uniformly fluttering, but afterwards it shoots them out two or three times successively at intervals, and when at its greatest height exhibits this action more remarkably. When it descends, the song is not intermitted, but is continued until it approaches the ground, when it usually darts down headlong, and alights abruptly. Frequently it resumes its song after alighting, and continues it for a short time, but more commonly it stops when it has reached the ground. Often the Lark may be seen hovering over a field, in full song, for a considerable time, at a small height. On the 4th May 1837, I observed a Lark perched on a half-burnt whin branch, where it remained singing a long time. I have often seen it perch on a wall, and several times on a hawthorn bush in a hedge, but it never, I believe, alights on tall trees.

The song of the Lark is certainly not musical, for its notes are not finely modulated, nor its tones mellow, but it is cheerful and cheering in the highest degree, and protracted beyond all comparison. In a sunny day in April or May, when the grass fields have begun to resume their verdure, it is pleasant to listen to the merry songster that makes the welkin ring with its sprightly notes; in the sultry month of July, still more pleasant is it to hear its matin hymn while the dew is yet on the corn; and in winter should you chance to hear the well-known voice on high, it reminds you of the bright days that have gone, and fills you with anticipation of those that are to come. No doubt much of the pleasure derived from the

Lark's song depends upon association, and to him who finds delight in wandering over the green fields, along the daisied margin of the clear stream that winds in the bottom of the pastoral glen, or upon the ferny brae, where the "lang yellow broom," and "blossomed furze unprofitably gay," shoot up amidst the wild thyme, yarrow, and blue-bell, it is pleasant to listen even to the "~~skirl~~" of the Corn Bunting, the see-saw song of the Tit, the ~~creaking~~ cry of the Partridge, or the singular crake of the Land Rail; but, independently of circumstances and associations, the song of the lark imparts an elasticity to the mind, elevates the spirits, and suspends for a time the gnawing of corroding care. The mellow song of the Merle or Mavis is apt to inspire melancholy, especially if heard in a sequestered valley toward the close of day, and the feelings which it excites have perhaps as much of a depressing as of a soothing tendency; but the carol of the Lark, like the lively fife, excites pure cheerfulness, and might with propriety be prescribed as an antidote to dulness. It is not merely music that we look for in the song of birds; but variety, and the expression of passions, feelings, and wants. Were all our warblers to tune their throats according to rule, we should become sickly and sentimental, fill the valleys with sighs, and groan from the mountain tops; but the loud war-whoop of the Eagle, the harsh scream of the Heron, and the croak of the Raven, are antidotes to the bewitching melody of the Black-cap and Nightingale. I have endeavoured to trace a repetition at regular intervals in the strains of the Lark; but its modulations seem to have no rule. In confinement this bird sings every whit as well as when at large; and when rapidly perambulating the square bit of faded turf in its cage, it enacts its part with apparently as much delight as when mounting "towards heaven's gate."

"No bird," says Mr Main, in the Magazine of Natural History, Vol. IV, p. 414, "sings with more method: there is an overture performed *vivace crescendo*, while the singer ascends; when at the full height, the song becomes *moderato*, and distinctly divided into short passages, each repeated three or four times over, like a *fantasia* in the same key and time. If there be any wind, he rises perpendicularly by bounds, and after-

wards poises himself with breast opposed to it. If calm, he ascends in spiral circles; in horizontal circles during the principal part of his song, and zigzagly downwards during the performance of the *finale*. Sometimes, after descending about half-way, he ceases to sing, and drops with the velocity of an arrow to the ground. Those acquainted with the song of the Sky Lark can tell without looking at them whether the birds be ascending or stationary in the air, or on their descent; so different is the style of the song in each case. In the first there is an expression of ardent impatience; in the second an *andante* composure, in which rests of a bar at a time frequently occur; and in the last, a graduated sinking of the strains, often touching the subdominant before the final close. The time and number of the notes often correspond with the vibrations of the wings; and though they sometimes sing while on the ground, as they are seen to do in cages, their whole frame seems to be agitated by their musical efforts."

"Larks," says Mr Weir, are strongly attached to their young. I saw a collier last summer (1837) gin a pair and put them and their nestlings, which were four in number, into a cage. In the course of a few hours they began to feed them, and continued to do so until they were able to peck. I know a woman who has kept a male lark for several years. During that time he has acted as a faithful step-father, having brought up a number of his own species, likewise several broods of linnets. And what is still more wonderful, I saw a lark which was only a few weeks old, assisting him most assiduously in giving food to a family of young birds."

The Sky Lark generally rears two broods each season, the first being usually abroad by the 10th of June, but often earlier, and in fine seasons so soon as the middle of May. The nest is formed in a hollow scraped in the ground, among corn, in a hay field, or in an open pasture. It is composed of stalks and blades of withered grass; rather loosely put together, and lined with finer fibres. The eggs are four or five, from ten to eleven-twelfths of an inch in length, about eight and a half twelfths across, of a broadly oval form, greenish-grey, irregularly freckled with deeper greenish-grey, or greyish-brown, or umber-brown,

so thickly at the larger end as to obscure the ground-colour. They vary greatly in form, the longest in my collection measuring an inch and half a twelfth, with a breadth of only seven and a quarter twelfths, the shortest being nine and a half twelfths long and seven twelfths broad, while another is ten and a half twelfths long and eight and a half twelfths in breadth. Although few authors, in speaking of the nest, make mention of an artificial hollow for its reception, I have never found it otherwise situated than in a cavity so regularly rounded that it could not but have been scraped out by the bird itself. Two nests in particular, one in gravelly soil on the Braid Hills near Edinburgh, another in an outfield of which the soil was almost pure sand, in Harris, were so deeply sunk that their edge was level with the surface. When sitting on the eggs, the Lark will allow a person to walk quite close by without rising, and I once caught one thus occupied which I accidentally perceived while walking through a corn-field. When disturbed and forced to rise, she flies off low, with a cowering tremulous flight, and either alights at a little distance, or ascends and hovers around, emitting a faint churm, which generally brings up the male. When bringing food to her young, she sometimes hovers a few moments over the nest and drops beside it, but often alights at a little distance and runs up to it. Boys frequently discover Larks' nests by watching their fluttering descent into them.

This bird always reposes on the ground at night, squatting frequently in the barest places. Its principal enemies, besides man, are Polecats, Weasels, Merlins, Sparrow Hawks, and Kestrils. The latter sometimes devour the young birds, which also fall a prey to the quadrupeds mentioned. I remember seeing in a grass field, many years ago, a number of Larks hovering over a particular spot, and incessantly uttering cries that seemed to me indicative of anxiety or distress. On going up, I observed a Polecat rush through the grass and disappear. It had been disturbed while in the act of eating the young birds in a nest, and had killed the whole, for those which remained had the head bitten through.

From the middle of spring to the end of June, Larks may

very frequently be seen on the roads, and when disturbed sometimes alighting on the walls, to return when the intruder has passed. In warm dry weather they flutter in the dust, like Sparrows and many other birds, appearing to derive great enjoyment from this action. In the early part of autumn, they have no song, and fly about in a very quiet manner, in pairs, or a few together, apparently intent on recruiting their energies by the abundant food which they obtain in the stubble and grass fields, but they resume their song in September, and, when the weather is fine, often continue it into the winter.

The Sky Lark is generally distributed in Britain, and is plentiful even in the most northern parts of the mainland and islands of Scotland. It remains all the year, but in winter the aggregated individuals repair to the lower districts. Although not confined to arable land and green pastures, it is rarely met with on heathy tracts. According to authors it is of general occurrence on the Continent of Europe, and inhabits many parts of Asia, as well as the north of Africa.

Larks cannot be considered of much importance as an article of food; yet vast numbers are sent to our markets in winter, especially in London, and some other English cities; but in Scotland they are in little request. They taste well, not better however than the Corn Bunting, but are decidedly inferior to the Blackbird, Fieldfare, and Thrush. ~~The eggs of all small birds are delicious, those of the Sky Lark, Meadow Pipit, Wheatear, Thrush, and Corn Bunting, I have often, when a boy, eaten in the Hebrides,~~ after being roasted in peat ashes.

Young.—The general colour is light yellowish-grey, all the feathers of the upper parts dusky, tipped and margined with the former, the ear-coverts reddish. The young in their second plumage may be distinguished from the old birds, by their having the dark markings larger, the bill and feet paler, the claws, especially that of the hind toe, shorter.

2. ALAUDA ARBOREA. Linn. THE WOOD LARK.



Fig. 140.

Alauda arborea. Linn. Syst. Nat. I. 297.
Alauda arborea. Lath. Ind. Orn. II. 492.
Alauda cristatella. Lath. Ind. Orn. II. 499.
Wood Lark. Mont. Orn. Dict.
Alouette Lulu. Alauda arborea. Temm. Man. d'Orn. I. 282.
Wood-Lark. Alauda arborea. Selb. Illustr. I. 276.
Alauda arborea. Wood-Lark. Jen. Brit. Vert. An. 127.

Of both sexes the upper parts light reddish-brown streaked with brownish-black, the fore-neck reddish-white streaked with brownish-black, the sides light brown, the rest of the lower parts yellowish-white, a distinct yellowish-white band over the eye continuous with a patch of the same on the nape; the first quill minute, the fourth longest.

Male.—The Wood Lark, although considerably smaller than the Sky Lark, so closely resembles it in colouring, that it is difficult to point out the differences between the species. The bill of the Wood Lark is much more slender, its hind claw less elongated, and its wing of a different form, as is indicated in the specific character. The feathers on the head are

much longer; the upper parts of a redder tint, the white of the lower parts tinged with yellow, in place of brown, the fore-neck lighter with its dark spots more slender.

The bill is rather more than half the length of the head, slender, tapering, about the same height and breadth at the base, its gape-line straight, the edges sharp and without notch, the tips rather acute. The tongue is narrow, sagittiform, nearly flat above, with the tip lacerated. The eyes are rather small, their aperture being nearly two-twelfths; that of the ear three-twelfths in diameter; the nostrils elliptical, three-fourths of a twelfth long, with a distinct operculum, but concealed by the feathers. The tarsi are slender and compressed, their upper anterior and posterior scutella indistinct; the first, second, and third toes, excluding the claws, nearly equal, the third considerably longer. The hind claw is extremely elongated, much compressed, very slightly curved, and tapers to a fine point; the third is much longer than the two lateral; the anterior claws feebly curved, much compressed, laterally channelled, and tapering. On the first toe are six, on the second eight, on the third twelve, on the fourth also twelve scutella.

The plumage is soft, with slight gloss, rather compact above, blended beneath. The feathers are generally ovate and rounded, with a slender plumule of few filaments. Those about the base of the bill are bristle-tipped, and there are also small decurved bristle-feathers at the base of the upper mandible. The feathers on the top of the head are elongated, decurved, and oblong. The wings are long and broad, the quills very slightly curved; the first quill is extremely small; the next three are nearly equal, but the fourth is longest, the fifth shorter than the second; the third, fourth, fifth, and sixth, are slightly cut out on the outer web; the rest of the primaries, and five secondaries, are deeply emarginate; the sixth secondary is much elongated and tapering to a rounded point. The tail is emarginate, its feathers broad and rounded.

The bill is dark greyish-brown, the basal edge of the upper, and the greater part of the lower mandible flesh-coloured. The iris is hazel. The feet are pale greyish-yellow, the claws yellowish-brown. The general colour of the upper parts is light

reddish-brown, on the fore part of the back brownish-red, all the feathers with a narrow brownish-black central spot towards the end, excepting those of the rump and the upper tail-coverts. The quills are chocolate-brown, edged and tipped with light reddish-brown; the larger coverts darker, tipped with pale brown, as are the larger small coverts, so that there are two rather conspicuous bands on the wing. The tail feathers are blackish-brown, the central broadly edged with reddish-brown; the outermost with an oblique terminal space of brownish-white, and the three next on each side having a triangular spot of white at the tip. The hind part of the neck and a band over each eye, are yellowish-white; the ear-coverts reddish-brown tinged with dusky. The fore part of the neck is reddish-white having a tinge of yellow, its sides more deeply tinged with red, all, excepting a small part of the throat, streaked with narrow oblong brownish-black spots, as is a portion of the breast. The rest of the lower parts yellowish-white.

Length to end of tail $6\frac{2}{12}$; extent of wings $12\frac{1}{2}$; bill along the ridge $\frac{6}{12}$, along the edge of lower mandible $\frac{8\frac{1}{2}}{12}$; wing from flexure $3\frac{10}{12}$; tail $2\frac{5}{12}$; tarsus $\frac{10}{12}$; first toe $\frac{5}{12}$, its claw $\frac{7\frac{1}{2}}{12}$; second toe $\frac{4\frac{3}{4}}{12}$, its claw $\frac{5}{12}$; third toe $\frac{6}{12}$, its claw $\frac{4}{12}$; fourth toe $\frac{4\frac{3}{4}}{12}$, its claw $\frac{2\frac{1}{2}}{12}$.

Female.—The female differs very little from the male in external appearance, the dark markings however being generally larger, and the lower parts less tinged with yellow.

Length to end of tail 6 inches; extent of wings 12.

Habits.—The Wood Lark is met with chiefly in the southern, western, and midland districts of England, being of rare occurrence in the northern parts of that country, and not having hitherto, I believe, been observed in Scotland. It is a permanent resident, and in winter generally appears in small parties, which search the fields for insects, larvæ, and seeds of various kinds. Its mode of progression on the ground, and its ordinary flight, are similar to those of the Sky Lark; it reposes at night in the fields or pasture grounds; but by day it frequently perches on trees or bushes. In time of snow, it betakes itself to marshy

meadows, in search of worms, or, if the ground be entirely frozen, to stack-yards, where it joins the Sparrows, Buntings, and other small birds, in appropriating to itself as many of the seeds as it can obtain.

Early in spring the small flocks disperse, and by the middle of March, should the season be favourable, the different pairs have commenced the building of their nests. At this time the Wood Lark is in full song, and may be seen springing from a field in the same manner as the common species, ascending either perpendicularly or in a slanting direction, then sweeping along in circles, and all the while pouring forth its cheerful song, which, although not so diversified as that of the Sky Lark, is considerably more melodious. Indeed as a songster this bird has been considered as little inferior to the Nightingale or Garden Warbler. It also sings at times when perched on a tree, as well as on the ground, and its song is continued through the greater part of the year, ceasing only from the middle of autumn to that of winter, although in the latter season, and in early spring, it is to be heard only on fine sunny days.

The nest is placed on the ground, generally in a corn field, or in pasture land, in the vicinity of a wood or thicket, and is composed externally of dry grass, and lined with finer blades intermixed with hair. The eggs, four or five in number, average ten-twelfths of an inch in length, seven-twelfths and a half in breadth, and are of a pale yellowish-brown colour, freckled with umber or greyish-brown, and sometimes having a few irregular dusky lines at the larger end.

Some of the above particulars are given on the authority of Montagu, as the opportunities which I have enjoyed of observing this species in the south-western counties of England have been few. The descriptions, however, are taken from actual specimens.

Young.—Upper parts yellowish-brown, the feathers with a band of dusky, and light edges; lower parts pale greyish-yellow, sides and fore part of neck with angular dusky spots; part of the breast tinged with yellowish-red.

3. Alauda cristata.
4. Alauda brachydactyla.

Genus I. ANTHUS. Bechst. PIPIT.

Bill of moderate length, slender, straight, at the base rather broader than high, compressed towards the end; upper mandible with the dorsal outline slightly declinate at the base, very slightly declinato-arcuate towards the end, the ridge narrow at the base, the nasal depression being large, the sides towards the end convex, the edges direct, soft and rounded at the base, sharp in the rest of their extent, with a slight notch close to the tip, which is declinate, narrow, and rounded; lower mandible with the angle rather long, narrow, and rounded, the dorsal outline straight, the back broad and convex at the base, narrowed towards the end, the sides convex, the edges erect and sharp, slightly overlapped by those of the upper; the gape-line straight, a little deflected at the base.

The upper mandible within is concave and narrow, with a central prominent line; the palate flat, with two parallel ridges; the posterior aperture of the nares oblongo-linear, and edged with small pointed papillæ. The lower mandible is very narrow and rather deeply concave, with a median prominent line. The tongue is very slender, sagittate at the base, and finely papillate, tapering to a slit point. The œsophagus is of moderate width, nearly equal throughout, without crop or remarkable dilatation; the proventriculus oblong, with oblong glandules. The stomach is a gizzard of considerable power, roundish, compressed; its muscles distinct, the tendons large. The intestine is short, its duodenal portion wider; the cœca very small and cylindrical; the rectum very short, with an oblong dilatation.

Nostrils descending, perforate, short-elliptical, or oblong, in the lower and fore-part of the nasal depression, which is feathered, except in its anterior portion. Eyes of moderate size; eyelids feathered, with a narrow, bare, crenate margin. External aperture of the ear large, transversely oval.

The general form is slender, the body ovate, the neck rather short, the head small, narrow, ovato-oblong. The feet are rather long, and slender; the tarsus much compressed, anteriorly covered with eight scutella, acute behind. Toes longish, slender, compressed; the first large, narrow beneath; the second and fourth about equal, the third much longer, united to the fourth as far as the second joint. Claws long, slightly arched, extremely compressed, tapering to a fine point, laterally grooved, that of the hind toe much elongated.

Plumage soft, on the upper parts the feathers rather distinct, on the lower blended; the feathers generally ovate, of loose texture, with a long slender plumule. Wings rather long, of eighteen quills, of which nine are primary, the first four nearly equal and longest; the secondaries very long, one of them nearly as long as the outer primaries when the wing is closed; the inner primaries and outer secondaries emarginate. Tail rather long, straight, emarginate, of twelve feathers.

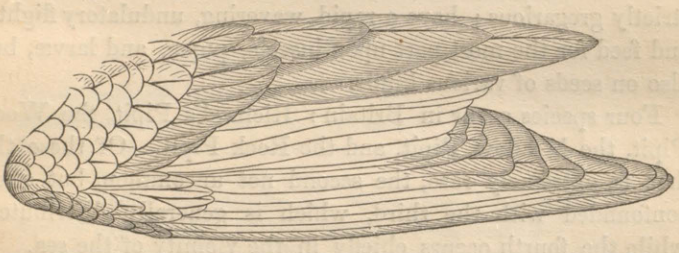


Fig. 141.

The Pipits are very intimately allied to the Larks, Alauda, on the one hand, and to the Wagtails, Motacilla, on the other. Although much more slender than the former, their affinity to them, both in form and colouring, is so great that by the older ornithologists they were included in the same genus. On comparing a Lark and a Pipit, it will be seen that the bill is formed on the same plan, that the feet agree in presenting the very elongated hind claw, and that the wings are of the same form, one of the inner secondaries being much lengthened and tapering. Compared with a Wagtail, a Pipit presents similar analogies; its bill is almost precisely similar, its wings are of the same form, its feet differ very little, but its tail, although

rather long, is very much shorter. Indeed there can be no doubt whatever, that the Pipits are precisely intermediate between the Larks and the Quaketails and Wagtails. In their digestive organs they resemble the Larks, at least in the form and great muscularity of the gizzard, which is much compressed on the edges; and they use a considerable quantity of gravel to aid in triturating their food.

They are small, slender, active birds, remarkable for their sharp, rather weak, notes, which they utter in a rapid manner, and for their habit of vibrating the body when standing. They frequent meadows and pastures, but may be seen in all kinds of situation, on the sea-shore, and on elevated moors, although each species has its peculiar predilections. They nestle among the grass, generally beside a tuft, turf, or stone, form a rather large, neatly constructed nest, which is lined with finer filaments, and deposit four or five spotted eggs. Frequently two broods are reared in the season. They are social, but not strictly gregarious; have a rapid, wavering, undulatory flight; and feed for the most part upon insects, pupæ, and larvæ, but also on seeds of various kinds.

Four species occur in Britain: Richard's Pipit, the Wood Pipit, the Meadow Pipit, and the Rock Pipit. Of these the first is extremely rare, the second not uncommon, but often confounded with the third, which is generally distributed, while the fourth occurs chiefly in the vicinity of the sea. I shall describe first the most common species.

Linn.

1. ANTHUS PRATENSIS. THE MEADOW PIPIT.

Moss-cheeper.

TITLARK. TITLING. COMMON TITLARK. GLASIAN.



Fig. 142.

Alauda pratensis. Lath. Ind. Orn. II. 493.
Alauda campestris. Lath. Ind. Orn. II. 495.
Tit Lark. Mont. Orn. Dict.—Suppl.
Pipit Lark. Mont. Orn. Dict.
Pipit Farlouse. Anthus pratensis. Temm. Man. d'Orn. I. 269.
Meadow Pipit, or Tit. Anthus pratensis. Selb. Illustr. I.
Anthus pratensis. Meadow Pipit. Jen. Brit. Vert. An. 117.

Upper parts olivaceous, spotted with dusky; lower brownish-white, anteriorly tinged with red; the neck, sides, and fore part of the breast marked with ovato-oblong, brownish-black spots; the first quill shorter than the fourth; the hind claw slightly arched, extremely slender, much longer than the first joint.

Male.—The Meadow Pipit, which is met with in all parts of the country, is of a slender and rather elegant form, although not remarkable for the beauty of its plumage, its colouring being very similar to that of the Sky Lark. As it is very intimately allied to the Tree Pipit, I consider it expedient to describe both species in detail.

The bill is straight, slender, broader than high at the base, compressed towards the end. The upper mandible has its dorsal outline slightly declinate at the base, then nearly straight, towards the end very slightly declinato-arcuate, the edges direct, sharp, with a distinct notch close to the narrow, slightly declinate tip. The lower mandible has the angle medial, the back convex, the sides convex, the edges a little inflected and sharp. Both mandibles are narrow and concave within, with a prominent median line; the palate is flat, with two ridges; the tongue very slender, half an inch long, emarginate and papillate at the base, grooved above, its tip slightly slit and fringed. The œsophagus is two and a half inches long, without dilatation, its average diameter a twelfth and a half; the proventriculus is rather large, having a diameter of three-twelfths, its glandules large, and oblong. The stomach is seven-twelfths long, six-twelfths broad, compressed; its muscles distinct and strong, its tendons three-twelfths in breadth. The intestine is seven and a half inches long, its diameter in the duodenal portion a twelfth and a quarter. The cœca are cylindrical, scarcely half a twelfth long, and a quarter of a twelfth in diameter. The rectum is ten-twelfths long.

The nostrils are oblongo-elliptical, three quarters of a twelfth long, with a narrow, bare operculum. The aperture of the eyes is a twelfth and a half in diameter; the eyelids with two rows of small rounded feathers. The ear is transversely elliptical, two and a half twelfths in its greatest diameter. The feet are of moderate length, and very slender. The tarsus much compressed, anteriorly covered with seven long scutella, posteriorly edged, with two plates and inferior rugæ. The outer toe is slightly shorter than the inner; the first has eight, the second nine, the third fourteen, the fourth eleven scutella.



Fig. 143.

The claws are extremely compressed, slightly arched; that of the hind toe extremely attenuated, curved in about the eighth of a circle, longer than the first joint, and, when the toes are brought together, extending beyond the point of that of the middle toe.

The plumage is soft, slightly glossed; the feathers ovate,

rounded, with a long, slender plumule of few barbs; somewhat distinct on the upper parts, blended beneath. There are a few short bristle-feathers at the base of the bill. The wings are rather long: the first four primaries are nearly equal, but the third is longest; the first shorter than the fourth, (whereas in the Tree Pipit, the first is longest); the second, third, and fourth, are cut out on the outer web towards the end; the inner four primaries, and outer five secondaries, are emarginate; the three inner secondaries tapering and rounded, the sixth nearly as long as the longest primaries when the wing is closed. The tail is rather long, and slightly emarginate.

The edges of the upper mandible, and the greater part of the lower, are yellowish-red, or flesh-colour; the rest of the upper, and the tip of the lower, dusky. The irides are deep blackish-brown. The feet light yellowish-brown; the claws dusky. The general colour of the upper parts is light greenish-brown, each feather with the central part blackish-brown, excepting on the rump. The quills and coverts are clove-brown, margined with dull greyish-green; the tips of the first row of small coverts, and of the secondary coverts greenish, inclining to grey. The tail-feathers are dark brown, the two middle lighter and edged with green, the rest very narrowly edged with the same; the outer having an oblique terminal band of white, occupying nearly half its length; the rest with a white triangular spot at the tip. The general colour of the lower parts is pale yellowish-grey, or brownish-white, with a tinge of red on the throat and breast. The edges of the eyelids are of the same colour. The cheeks are olivaceous, faintly spotted with dusky; there is a slender line of dusky spots from the base of the lower mandible down each side of the neck; the fore part of the breast and the sides, marked, the former with oblongo-triangular, the latter with long, narrow, brownish-black spots; the abdomen, and lower tail-coverts, unspotted.

Length to end of tail $6\frac{2}{12}$ inches; extent of wings $9\frac{3}{4}$; bill along the ridge $\frac{5}{12}$, along the edge of lower mandible $\frac{6\frac{1}{2}}{12}$; wing from flexure 3; tail $2\frac{1}{2}$; tarsus $\frac{9\frac{1}{2}}{12}$; first toe $\frac{5\frac{1}{2}}{12}$, its claw $\frac{6}{12}$; second toe $\frac{6}{12}$, its claw $\frac{5}{12}$; third toe $\frac{8\frac{1}{2}}{12}$, its claw $\frac{5}{12}$; fourth toe $\frac{5\frac{3}{4}}{12}$, its claw $\frac{2}{12}$.

Female.—The female is scarcely distinguishable from the male, being merely a little smaller, with the colours of the plumage slightly duller.

Length to end of tail $5\frac{1}{12}$; extent of wings $9\frac{1}{2}$; bill along the ridge $\frac{5}{12}$, along the edge of lower mandible $\frac{7}{12}$; tarsus $\frac{9}{12}$; middle toe and claw $\frac{10}{12}$; hind toe and claw $\frac{11}{12}$, the claw being $\frac{5}{12}$; wing from flexure 3; tail $2\frac{1}{4}$.

Male in Summer.—The difference of colour and texture produced in the plumage by exposure to the weather is considerable, birds shot in summer having a very faded appearance, owing to the abrasion of the greenish margins of the feathers. The general colour of the upper parts is light greyish-brown, the central part of each feather dark-brown, excepting on the rump, where the markings are very obscure. The wings are greyish-brown; the secondary coverts, and first row of small coverts, have their margins greyish-white. The middle tail-feathers are greyish-brown, the rest dark-brown, edged with lighter; the outer with an oblique white band, including the terminal part of the inner web, and the whole of the outer, excepting the basal part. There is a light coloured line over the eye. The lower parts are of a dull whitish-grey, slightly tinged with brown; the sides of the neck, its fore-part below, the fore-part of the breast, and the sides, spotted with blackish-brown.

Female in Summer.—The female undergoes the same changes.

Variations.—I have not met with any remarkable variations in colour, excepting those produced by the gradual decay of the plumage. Individuals vary in length from 6_{12}^{5} to 5_{12}^{9} inches, and in extent of wing from $10\frac{3}{4}$ to $9\frac{1}{2}$. The claw of the hind toe is sometimes $\frac{7}{12}$ long, and scarcely ever less than $\frac{6}{12}$ in adult birds.

Habits.—The Meadow Pipit is a very common bird in most parts of Scotland and England, being met with on moors, in pastures, meadow land, and cultivated fields, from one extremity of the island to the other. In the haunts of the Grey Ptarmi-

gan on the stony summits of the central Grampians, in the grassy valleys of the Highland streams, in the fertile plains of the south, and on the downs that border the sea, it is equally at home; but it is more abundant in the green pastures that flank the upland glens, and on the sedgy moors of the interior. There it is seen at all seasons, in small companies, flying about in its peculiar wavering manner, and chirping its weak, shrill note. In winter, however, most of the individuals betake themselves to the lower grounds, many to the sea-shore, where they mingle with the Rock Pipits. During snow, they search the margins of streams and lakes, frequent unfrozen marshes, and even appear in the stack-yards. Their food consists of insects, pupæ, larvæ, and occasionally small seeds, along with which they pick up particles of gravel, and frequently in the lower districts small bits of coal and other dark coloured substances. When searching for it, they walk by short alternate steps, keeping the body close to the ground, in the manner of the Sky Lark, and when alarmed either crouch, or spring up, uttering a repetition of their ordinary cheeping note, and fly off to a distance. You may see them perch occasionally on a bush or tree, frequently on a wall, a stone, or a rock; but they are essentially ground birds, and while they are employed all day in traversing the meadows and pastures, they repose at night among the dry grass of the moors and hills, or under the shelter of tufts of heath, furze, or other small shrubs. Their ordinary flight is wavering and desultory, but when travelling they fly with speed, in an undulating line. They are not generally very shy, so that they are easily shot, but at the same time they are evidently watchful and suspicious, and fly off when one approaches nearer than thirty yards.

When the warm weather commences they pair, and disperse over the moors and pastures. The song of the male is rather pleasant, being composed of a series of sharp modulated notes, which it utters on wing, first ascending, silently, or emitting only its usual cheep, to the height of about twenty yards, and then descending with expanded wings and tail. Sometimes also it sings when perched on a stone or crag. Its song may be heard from the middle of April to the end of July. During

the breeding season, the male is easily alarmed, and flutters over an intruder, emitting its shrill notes; but while incubating, the female will allow a person to walk close to her without rising; and when she does fly off, it is with a cowering fluttering motion, with the tail expanded, as if she were under the influence of disease or extreme terror. I have several times caught the female while sitting on her eggs, by creeping up, having previously marked the nest, and clapping my hand upon it.

The nest is usually placed on a grassy bank, or beside a tuft or turf, and is often so sunk into the ground as to be with great difficulty discovered. It is bulky, but neatly constructed, the exterior being formed of stems and leaves of grasses, the interior of finer straws, and sometimes of fibrous roots, with occasionally a good deal of hair. The eggs, generally five, but varying from four to six, are of a regular oval form, from nine to nine and a half twelfths long, about seven and a half twelfths across. They vary much in colour, but generally have a light grey, or brownish-white ground, dotted and freckled all over with purplish-grey, reddish-brown, or dusky, the dots most abundant on the larger end, where they are often so thick as entirely to conceal the ground colour. They are generally deposited about the middle of April, and the young are abroad by the end of May. Another brood appears about the middle of July.

Young.—When fledged, the young differ little from the old birds. The plumage of the upper parts has the dark brown spots larger, and their margins dull greenish-yellow; the spots on the fore-neck and breast are larger; and the breast and sides are strongly tinged with light red. The outer tail-feather has the inner web white in its terminal half, the outer web grey towards the end, white in the middle and nearly to the base; the second has a small white spot at the tip. The bill is dusky above, yellowish beneath; the feet and claws pale reddish-yellow.

Progress toward Maturity.—Little change takes place at the first moult, which is completed towards the end of autumn. Young birds are more brightly tinted than old ones, at least the green colour of their upper parts is brighter. As the bird

advances in age, the bill becomes stronger and darker; the toes assume a dusky tint, and the claws are ultimately blackish, excepting the tip of the hind claw, which always remains light-coloured and transparent.

Remarks.—It is not wonderful that the older ornithologists, who attended more to colour than to form, should have confounded the Pipits, and sometimes made several species out of one; but the characters which these birds present when closely examined are quite sufficient to enable any person to distinguish the species at once. Montagu describes the present bird in its perfect plumage, that is in winter, when the feathers are complete, under the name of Pipit Lark, and in its faded or summer plumage under that of Tit Lark. Of the former, he observes, "we have never been able to procure one specimen in summer;"—certainly not, for in that season the colours are materially altered. On more mature consideration, however, having examined specimens at all seasons, he came to the conclusion that the Pipit Lark and the Tit Lark are one and the same species. And here, it may not be improper to observe, that the perfect plumage, in which all species ought to be first described, is that of winter, when the feathers have their edgeings complete. The abrasion which subsequently takes place, may frequently bring out brighter and more uniform tints, as in the Linnets; but still the plumage in summer is always imperfect.

The Meadow Pipit is the species to which the charge of the young Cuckoo is most frequently consigned. This circumstance has not eluded the observation of our country people, who, having often seen the "Gowk" followed by the "Titling," employ the comparison derisively in speaking of a parasite and his patron, not aware that here the larger and more patron-looking animal is really the parasite.

2. ANTHUS ~~ARBOREUS~~ trivialis, Linn. THE TREE PIPIT.

MEADOW LARK. SHORT-HEELED FIELD LARK.



FIG. 144.

Alauda trivialis, Linn. Syst. Nat. I. 288.
Alauda trivialis. Lath. Ind. Orn. II. 493.
Alauda minor. Lath. Ind. Orn. II. 494.
Field Lark. Mont. Orn. Dict.
Pipit des Buissons. Anthus arboreus. Temm. Man. d'Orn. I. 271.
Tree Pipit. Anthus arboreus. Selb. Illustr. I. 262.
Anthus arboreus. Tree Pipit. Jen. Brit. Vert. An. 118.

Upper parts olivaceous, spotted with dusky; lower brownish-white, anteriorly tinged with reddish-yellow; the neck, sides, and fore-part of the breast marked with ovato-oblong, brownish-black spots; the first quill longest; the hind claw strongly arched, shorter than the first joint.

MALE.—The Tree Pipit, which is of much less frequent occurrence in Britain than the Meadow Pipit, and does not remain there during winter, is so very similar to that species, as to require a minute comparison with it, before one can readily distinguish the two species. The differences are expressed in the specific characters given above.

The bill is considerably thicker than that of the Meadow Pipit, but otherwise similar, being straight, slender, broader than high at the base, compressed towards the end, with a distinct notch, and small slightly declinate tip. The digestive organs are in all respects similar to those of the Meadow Pipit. The œsophagus is of nearly uniform diameter throughout, two inches and a half long, its average breadth a twelfth and a half; the proventriculus with short oblong glandules. The stomach is eight-twelfths of an inch long, six and a half broad, roundish, compressed, its lateral muscles very thick and carinate, or forming a thin edge, the lower muscle very thin; the tendons very large, four-twelfths in diameter; the inner coat tough, thin, and broadly rugous. The intestine is eight inches long, varying in diameter from two-twelfths to one-twelfth; the cœca extremely small, cylindrical, half a twelfth long; the rectum eleven-twelfths in length. The nostrils are oblongo-elliptical, three quarters of a twelfth long, with a narrow, bare, operculum. The aperture of the eyes is a twelfth and a half in diameter; the eyelids with two rows of small, rounded feathers. The ear is transversely elliptical, two and a half twelfths in its greatest diameter. The feet are of moderate length, and very slender. The tarsus much compressed, anteriorly covered with eight long scutella, posteriorly edged, with two plates and inferior rugæ. The outer toe is slightly shorter than the inner; the first has eight, the second ten, the third thirteen, the fourth ten scutella. The claws are extremely compressed, moderately arched; that of the hind toe curved in about the fifth of a circle, rather shorter than the first joint, and when the toes are brought together not extending so far as the point of that of the middle toe.



Fig. 145.

The plumage is soft, and slightly glossed; the feathers ovate, rounded, with a long slender plumule of few barbs, somewhat distinct in the upper parts, blended on the lower. There are a few short bristle-feathers at the base of the bill. The wings

are rather long; the first primary is longest, the second very slightly shorter; the second, third, and fourth, slightly cut out on the outer web towards the end; the inner four primaries, and outer five secondaries, emarginate; the inner three secondaries tapering and rounded, the sixth almost as long as the first primary when the wing is closed. The tail is rather long and slightly emarginate. A few pencil-tipped delicate bristles protrude from the nape.

The edges of the upper mandible, and the greater part of the lower, are pale greyish-yellow; the rest of the upper and the tip of the lower dusky. The irides are deep brown. The feet and claws pale greyish-yellow. The general colour of the upper parts is light greyish-brown, tinged with green, the central part of each feather dark brown, excepting on the rump, where there are no dark markings. The wings are greyish-brown; the first row of small coverts broadly tipped with greyish-white; the secondary coverts with similar but smaller tips, and margined with pale brownish-grey. The middle tail-feathers are greyish-brown, the rest blackish-brown, edged with lighter; the outer with an oblique greyish-white band, including the terminal half of the inner web, and the whole of the outer, excepting the basal part. There is a whitish band over the eye. The lower parts are brownish-white. The sides and fore part of the neck, the fore part of the breast, and the sides, strongly tinged with reddish-yellow, and marked with ovato-oblong brownish-black spots; the upper part of the throat, the abdomen, and the lower tail-coverts unspotted.

Length to end of tail $6\frac{5}{12}$ inches; extent of wings $11\frac{1}{4}$; bill along the ridge $5\frac{1}{2}$ twelfths, along the edge of lower mandible $7\frac{1}{2}$ twelfths; wing from flexure $3\frac{1}{2}$; tail $2\frac{8}{12}$; tarsus $\frac{10}{12}$; first toe $4\frac{1}{2}$ twelfths, its claw $4\frac{1}{2}$ twelfths; second toe $5\frac{1}{2}$ twelfths, its claw $2\frac{1}{2}$ twelfths; third toe $\frac{8}{12}$, its claw $\frac{5}{12}$; fourth toe $\frac{7\frac{1}{2}}{12}$, its claw $\frac{2}{12}$.

Female.—The female differs so little in external appearance as to be incapable of being distinguished without dissection.

Length to end of tail $6\frac{2}{12}$ inches; extent of wings 11; bill $\frac{5\frac{1}{2}}{12}$; tarsus $\frac{10}{12}$; middle toe and claw $\frac{10}{12}$; hind toe and claw $\frac{9}{12}$.

Habits.—The Tree Pipit, which although almost precisely similar to the Meadow Pipit in form and colouring, is readily distinguishable by the inferior elongation and greater curvature of its hind claw, and the pale greyish-yellow tint of its tarsi, toes, and claws, is a migratory species, appearing in England about the 20th of April, and in the south of Scotland in the beginning of May. It has been observed in most of the southern, western, and midland counties of the former country; more rarely in the northern districts. In Scotland it was, in so far as I know, first observed by Mr Weir, who found it in Linlithgowshire in 1833. I have in my collection a specimen obtained in the neighbourhood of Edinburgh, in the summer of 1835; and another in a recent state, which had been shot near Dalkeith, on the 21st June 1836, was given to me by Mr Carfrae.

This species does not frequent the heaths and open grassy pastures, which are the favourite places of abode of the Meadow Pipit in summer; but is found in the cultivated parts in the vicinity of woods and thickets. Its song, which is of the same lively character, but mellower, more modulated, and longer continued, is given out during its descent from an elevation of from twenty to thirty yards, during which it flutters with expanded wings and tail. Sometimes also it sings while perched on a tree, and more frequently while descending from one to the ground. The song continues until the middle of July.

The nest, which is placed among the grass, in a wood, or near its margin, is similar to that of the Meadow Pipit, being composed of dry grass, lined with finer blades, and having the interior of hair. One in my possession is bulky and rather rudely constructed, externally composed of stalks and blades of grass, together with moss, internally of finer grasses, rather neatly arranged. Its internal diameter three inches, the walls one inch thick. The eggs, four or five in number, are greyish or purplish-white, or flesh-colour, marked with spots and blotches of dark red or purplish-brown, and average in length nine-twelfths of an inch, in breadth seven-twelfths.

Mr Weir has favoured me with the following account of the species, as observed in West Lothian. "About the beginning

of June 1835, the song of a Pipit, which I observed upon the top of a tree, in a plantation in my neighbourhood, attracted my attention. As its notes in variety and sweetness seemed to be superior to those of the Meadow species, I was very anxious to examine it. I accordingly shot it, and sent it to a friend of mine in Edinburgh, telling him that from its appearance and notes I considered it to be the Tree Pipit. He shewed it to some of his ornithological acquaintances, who, as well as himself, firmly maintained that it was but a variety of the Meadow Pipit. Being determined however not to give up my opinion until I was fully convinced of its being incorrect, I paid more attention to these birds than I had formerly done. Having shot a few of each kind, and compared them together, I must acknowledge that I was not now astonished at the opinion which my friends had formed, for in the tints, markings, and distribution of their colours, they so closely resembled each other, that one could hardly distinguish them. When minutely compared however they are easily seen to be distinct. The Tree Pipit is larger and heavier, and the claws on the hind toe are much shorter, and more curved than that of the other species, as you will see from the specimens which I have sent you. After a great deal of trouble and research, I at last discovered one of their nests with eggs, which put an end to all dispute on the subject. Those of the Meadow Pipit are closely freckled, sometimes with dark and sometimes with light brown ; those of the Tree Pipit are blotched with deep vinous purple, and ' the ground colour of them partakes of a tint of the same, but much paler.'

" The Tree Pipits generally make their appearance here about the beginning of May, and frequent the woods. They perch upon the highest branches of a tree, from which they ascend into the air, uttering a twittering note at each extension of the wings. They send forth their song during their descent, which they perform with wings expanded and tail erected, till they again reach the tree, where they continue a short time after perching, and then descend to the ground in the same manner. They generally build their nests in plantations, at the root of a tree, and amongst long grass. It is very difficult to discover

them, as they are so cunningly concealed, and as the birds generally run several yards from them before they mount into the air. The nest on which I caught the old ones being in a park which had been grazed by cattle, and very near a plantation, afforded me an excellent opportunity of observing their motions. When they fed their young ones, which they did with flies, caterpillars, and worms, they always alighted at the distance of twenty or thirty feet from their nest, cowering and making zig-zag windings, and now and then putting up their heads, and looking around them with the greatest anxiety and circumspection. They are seldom met with in my neighbourhood; and in the long space of fourteen years I have seen only two or three of their nests."

The food of this species is similar to that of the Meadow Pipit. The contents of the stomach of one which I examined in June 1836 were remains of insects, but chiefly husks of very small seeds, with a considerable quantity of mineral fragments.

Young.—The young when fledged are similar to the old birds, but have the bill paler, the upper parts more tinged with green and marked with darker spots, the lower parts more yellow. One before me, just able to fly, on the 6th of June, has the bill, tarsi, toes, and claws flesh-coloured, the upper mandible tinged with brown; the plumage is coloured as in the adult, but the spots on the fore-neck are narrower, and those on the back of a deeper tint. Another from the nest, sent to me by Mr Weir, has the bill and feet flesh-coloured, the feathers of the upper parts brownish-black, margined with light greyish-yellow, the lower parts of a paler tint of the latter colour, the fore-neck marked with elongated brownish-black spots, the two lateral tail-feathers greyish-white on the inner web, the exterior pale brownish-grey on the outer web.

3 ANTHUS ~~AQUATICUS~~ obscurus. Gmel. / Dusky. S. THE ~~SHORE~~ PIPIT.

ROCK PIPIT. ROCK LARK. SEA LARK. DUSKY LARK. GLASIAN.

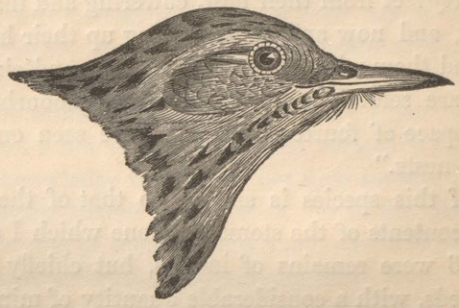


FIG. 146.

Alauda obscura. Lath. Ind. Orn. II. 494.
Rock Lark. Mont. Orn. Dict.
Pipit Spioncelle. Anthus aquaticus. Temm. Man. d'Orn. I. 265.
Rock or Shore Pipit. Anthus aquaticus. Selb. Illustr. I. 258.
Anthus petrosus. Rock Pipit. Jen. Brit. Vert. An. 118.

Upper parts olivaceous, obscurely streaked with dusky; lower yellowish-grey; the neck, sides, and fore part of the breast, marked with oblong undecided dusky or olivaceous spots; the second quill longest; the hind claw slightly arched, about the same length as the first joint.

MALE.—The Shore Pipit is considerably larger than the Meadow Pipit, from which it may be easily distinguished by observing that the bill is much longer, the claw of the hind foot shorter, the upper parts of a dull olivaceous tint, and very obscurely marked with dusky streaks, while the spots on the lower are greenish-brown, ill-defined, and gradually blended with the ground colour, whereas in the Meadow and Tree Pipits they are blackish, smaller, and abruptly edged.

The bill is straight, slender, broader than high at the base, much compressed, nearly as long as the head. The upper mandible has its dorsal line at first a little declinate, then slightly arched, the edges slightly inclinate, the tip sharp, with the notch very small. The lower mandible has the angle long and narrow, the dorsal outline ascending and straight, the tip very narrow. Both mandibles are very narrow and concave within, with a prominent median line; the palate flat with two ridges; the tongue very slender, seven and a half twelfths long, its tip slightly slit and fringed. The œsophagus is two inches and eight-twelfths long; the stomach elliptical, eight-twelfths long, six and a half broad, its muscles distinct and very strong; the intestine eight-twelfths long; the rectum eleven-twelfths; the cœca cylindrical, one-twelfth long.

The nostrils are oblong, one-twelfth in length, with a narrow operculum. The eyes of moderate size, their aperture a twelfth and a half in diameter; that of the ear two and a half twelfths. The feet are of moderate size; the tarsus much compressed, with seven anterior scutella; the first toe nearly as stout as the third, with eight scutella; the second with ten; the third with twelve; the fourth a little shorter than the second, with twelve scutella. The claws are moderately arched, very long, extremely compressed, and tapering to a fine point, that of the hind toe scarcely so long as the first joint.



Fig. 147.

The plumage is very soft and blended. There are a few very small bristle-feathers at the base of the bill. The wings are rather long: the first four primaries are nearly equal, the second and third longest; the second, third, and fourth cut out on the outer web towards the end; the inner primaries and outer secondaries are abrupt and slightly emarginate; the inner three secondaries taper to a rounded point; the sixth is nearly as long as the longest primaries, when the wing is closed. The tail is rather long, and slightly emarginate.

The bill is dusky, with the edges and the basal part of the

lower mandible dull orange. The irides are deep blackish-brown. The tarsi reddish-brown, the toes and claws dusky. The upper parts are olivaceous, obscurely streaked with dark-brown, the central part of each feather being of the latter colour, as are the quills and coverts, of which the secondary coverts and those of the first row are tipped with whitish. The tail-feathers are blackish-brown, edged with olivaceous, the lateral greyish-brown, with an oblique brownish-white terminal band, including the greater part of the outer web, the next with the tip brownish-white. The general colour of the lower parts is greyish-yellow, of which there is a streak over the eye; the cheeks and sides of the neck yellowish-brown. A line of dusky spots extends from the base of the lower mandible; and the lower part of the neck, the anterior part of the breast, and the sides, are marked with oblong greyish-brown, or greenish-brown spots, which are obscurely defined, their margins not being abrupt as in the Meadow Pipit.

Length to end of tail $6\frac{8}{12}$ inches; extent of wings $10\frac{3}{4}$; bill along the ridge $\frac{7\frac{1}{2}}{12}$, along the edge of lower mandible $\frac{9\frac{1}{2}}{12}$; wing from flexure $3\frac{5}{12}$; tail $2\frac{7}{12}$; tarsus $\frac{11}{12}$; first toe $\frac{5}{12}$, its claw $\frac{4\frac{1}{2}}{12}$; second toe $\frac{5}{12}$, its claw $\frac{2\frac{3}{4}}{12}$; third toe $\frac{8}{12}$, its claw $\frac{3\frac{1}{2}}{12}$; fourth toe $\frac{4\frac{3}{4}}{12}$, its claw $\frac{4\frac{1}{2}}{12}$.

Female.—The female cannot be distinguished from the male unless by dissection, being merely a little smaller.

Length to end of tail $6\frac{6}{12}$ inches; extent of wings $10\frac{1}{2}$.

Variations.—I have not met with any other remarkable variations in colour than those dependent upon the gradual decay of the plumage. In summer, when the tips and margins of the feathers have been abraded, the bird has a bleached appearance, the upper parts being of a rather uniform greyish-brown, with very little olivaceous; the wings with two brownish-white bands; the lower parts paler, as is the streak over the eye. In short, the changes are similar to those exhibited by the Meadow Pipit.

Habits.—The Shore Pipit, although not generally very abun-

dant in any place, is by no means uncommon; but from its being confined to the vicinity of the sea, it is not so much in the way of being observed as the Meadow Pipit, which frequents the same localities in winter, and being very similar, is apt to be confounded with it. Montagu, who was one of the first ornithologists who clearly distinguished it from that species, discovered it "in great plenty on the coast of South Wales, where it was known by some of the natives by the name of Rock Lark;" and afterwards found it not uncommon on all the coasts from Kent to the Land's End in Cornwall. It occurs on most of the Scottish coasts, especially those which are rocky, and is not uncommon in the Hebrides. Along the shores of the Frith of Forth it is not unfrequent, especially during winter, when it betakes itself to the muddy and marshy places exposed by the tide, as well as to rocks or stones covered with fuci. Its food consists of insects, larvæ, small molluscous animals, and seeds of various kinds, in searching for which it mixes with the Meadow Pipits, and sometimes with Snowflakes and Sky Larks. In summer when masses of seaweeds happen to be cast on the shore and become putrid, they find among them an abundant supply of larvæ; and at all seasons they frequent the ebb, in order to pick up minute shellfish, and other marine animals, often mingling with Redshanks, Turnstones, or Purres. The flight of this species is wavering and desultory, and its cry is a repeated shrill cheep. When disturbed while feeding, it flutters about, frequently repeating its note, settles on a rock or stone, or on the grass, keeps vibrating its body, and waits until the intruder departs. But although shy, it is so only after a fashion, for it seems to consider itself safe at no great distance; and, indeed, it may generally do so with impunity, for it is very seldom molested, neither its colours nor the quality of its flesh being sufficiently attractive to the sportsman to induce him to hold it in request. It is scarcely gregarious at any season, but in winter may be said to be at least not unsocial.

From the coast of Fife to Aberdeen, Fraserburgh, and Inverness, it also occurs here and there.

crustacea,

About the middle of spring it pairs, and towards the end of April or the beginning of May forms a nest similar to that of the Meadow Pipit, being rather bulky and composed of stems

and blades of grass, with a lining of finer materials of the same nature, together with some hair. It is placed on a grassy bank, or among moss, in some rocky place, generally overhanging the sea, or not far inland. The eggs are four or five, regularly oval, ten-twelfths and a half long, eight-twelfths broad, of a greyish or greenish-grey tint, freckled all over with purplish-grey, often so thickly towards the larger end as completely to obscure the ground colour. Seaweeds and moss sometimes but not generally form part of the nest; just as fuci are frequently employed by the Golden Eagle and Raven, when they build on maritime cliffs.

The song of this species is composed of a shrill warble, not very agreeable, and is performed while the bird is hovering in the air. It is louder and less pleasing than that of the Meadow Pipit, not so protracted, but of the same general character. When one approaches its nest, it hovers around, incessantly uttering its shrill querulous notes, and betraying its anxiety by its restlessness. I have never met with it at the distance of half a mile from the shore, so that it appears to be strictly maritime.

Young.—The young when fledged have the feathers of the upper parts dark-brown edged with oil-green, the quills dusky edged with olivaceous, the lower parts more yellow than in the adult, and all streaked with olive-brown, except the abdomen, the bill and feet of a lighter colour.

Remarks.—M. Temminck states that this species inhabits more especially the south of Europe, where it nestles in the mountainous districts more frequently than on maritime rocks; and that it is migratory in the temperate countries. With us, however, it is stationary, and has never been observed in the hilly districts. It appears that with us at least, it was first distinguished by Montagu, and first described by Latham and Lewin, under the names of Dusky Lark and Alauda obscura. Montagu afterwards described it in the Linnæan Transactions, naming it the Rock Lark, Alauda petrosa; and various other names have since been imposed upon it.

4. ANTHUS RICHARDI. RICHARD'S PIPIT.

Anthus Ricardi. Richard's Pipit. Selb. Illustr. I. 264.
Pipit Richard. Anthus Richardi. Temm. Man. d'Orn. I. 263. III. 185.
Anthus Ricardi. Richard's Pipit. Jen. Brit. Vert. An. 117.

Upper parts olivaceous-brown spotted with dark-brown; lower parts dull white, the fore part of the neck beneath and a portion of the breast and sides tinged with reddish-yellow and marked with oblong dusky spots; a line of similar spots from the base of the bill; two outer tail-feathers white, with a portion of the inner web brown; tarsi long, hind claw much longer than the first joint of the toe, and nearly straight.

Male.—This species, of which only a very few specimens have been met with in England, is about the size of Anthus aquaticus, from which it is distinguished by its different colours, as well as by its more elongated tarsi, and hind claws. The bill is of moderate length, straight, rather stout, compressed toward the end; the head oblong; the neck rather short; the body somewhat slender. The tarsi are rather long, compressed, with eight anterior scutella; the toes rather long, the hind toe proportionally large; its claw very long, slightly arched, much compressed, tapering to a point; the fore claws also little arched. The plumage is soft and blended; the wings rather long, the outer quill longest, but the next two almost equal; the tail long, slightly emarginate and rounded.

The bill is dark-brown above, brownish-yellow beneath; the iris black; the feet and claws flesh-colour. The upper parts are light yellowish-brown, each feather with the central part dark-brown; the quills and larger coverts are dark-brown, margined with reddish-brown, the outer quill with white; the first row of small coverts with yellowish-white; the tail-feathers dark-brown, edged with pale yellowish-brown; the

outer feather dull white, with its shaft of the same colour; the next also white, with its shaft brown, and both have a patch of brown on the inner web, of less extent on the outer feather. A whitish streak passes over the eye, and the ear-coverts, which are light brown; a line of small dusky spots proceeds downward from the base of the bill; the lower parts are dull white; the sides of the neck, its lower anterior part, and a portion of the breast and sides tinged with reddish-brown, and marked with oblong dark-brown spots; the lower tail-coverts also tinged with red.

Length to end of tail $6\frac{3}{4}$ inches; wing from flexure $3\frac{5}{8}$.

Female.—The female is similar to the male, but has the lower parts less tinged with red.

Habits.—This species is represented as being of very rare occurrence on the continent, unless in the southern parts. It was first made known as a British bird by the justly celebrated ornithologist Mr Vigors, who described and figured a young individual taken alive in a net, in the fields, north of London, in October 1812. According to Mr Gould, two individuals were caught near London, in the spring of 1836. Mr Rennie mentions one taken near Oxford, and Mr Yarrell states that Mr Proctor shot another near Howick, on the coast of Northumberland, on the 13th of February 1832. It is said to be entirely terrestrial in its habits, to run with great celerity, move its tail upwards and downwards, like the Wagtails, feed on insects of various kinds, and emit a loud note while flying. The eggs are white, marked with numerous small irrregular reddish spots. This is a meagre account of the habits of a bird, but such statements, worth little or nothing, seem to satisfy our "best ornithologists."

Remarks.—The elongated hind claw of this bird assimilates it closely to the Larks, and with some other circumstances has induced Mr Vigors to place it in a genus apart from the Pipits, to which he has given the name of *Corydalla*. The length of its legs, as he remarks, seems to correspond with Dr Horsfield's

genus *Megalurus*, which however has the feet much larger, the wings of a different form, and seems to belong to the Turdinæ. Not having access to any of the British specimens, and having failed in procuring a foreign one, I have been obliged to compile the above account from the descriptions of Messrs Roux, Temminck, Vigors, Yarrell, and Vieillot.

Under the name of the "Lark from Pensilvania" Edwards figured a Pipit, which can be no other than the Alauda rufa of Wilson, referred erroneously by Mr Swainson to Anthus aquaticus, and which Lichtenstein, as well as the Prince of Musignano, has named Anthus ludovicianus, it being Alauda ludoviciana of Gmelin and Latham. Of this American bird I have now before me six specimens, and am thus enabled to say with certainty that it is different from any of the species described in this volume. Edwards says, "It is a bird common to Europe and North America: I have found it in the neighbourhood of London." Montagu also describes a bird which he conceives to be the same, and which he names Red Lark, Alauda rubra. Dr Fleming and other compilers have a Red Lark, which they consider as an Alauda, not an Anthus; but Edwards's bird is a Pipit; and, although his figure is incorrect, and coloured too red, is very difficult to be distinguished from Anthus pratensis. It is possible that we may have this Anthus; but the Red Lark of Montagu is clearly quite different, and probably a variety of the Sky Lark.

Family IX. MOTACILLINÆ. Motacillinæ.

WAGTAILS AND ALLIED SPECIES.

The family of Motacillinæ, which on the one hand is very intimately connected with the Alaudinæ, and on the other with the Saxicolinæ, is composed of the genera Budytes, Motacilla, Enicurus, and Lessonia. In Britain there are representatives of the first two of these genera.

The bill is of moderate length, straight, slender, rather broader than high at the base, compressed beyond the nostrils; the upper mandible has its dorsal outline straight and a little declinate, towards the end slightly convex, the tip slightly deflected, narrow, with the notches slight or obsolete, the edges slightly inflected and overlapping towards the end; the lower mandible has the angle rather long and narrow, the dorsal outline ascending and nearly straight, the edges sharp and inflected, the tip acute; the gape-line straight. Both mandibles are concave and narrow within, with a median prominent line. The tongue is very slender, emarginate, and finely papillate at the base, flat, and tapering to a slit point. The œsophagus is of uniform diameter without dilatation; the proventriculus with simple oblong glandules; the stomach a gizzard of considerable power, roundish or elliptical, compressed, its lateral muscles distinct, and the tendons rather large, but not radiated; its cuticular lining thin, with large longitudinal rugæ. The intestine is short, and of moderate width; the cœca very small and cylindrical. See Plate XIII, Fig. 5.

The nostrils are elliptical or oblong, in the lower and fore part of the nasal depression, which is feathered at the base. The eyes are of moderate size; the external aperture of the ear large and transversely oval.

The general form is slender; the head oblong, the neck rather short. The feet of ordinary length, slender; the tarsus

much compressed, anteriorly covered with eight scutella, sharp behind. The toes moderate or short, much compressed, the outer slightly united at the base; the claws generally of moderate length, curved, and rather stout, but in Budytes long, little curved, and extremely compressed.

The plumage is soft and blended; the feathers ovate, of loose texture, with a long slender plumule. The wings are rather long, broad, of eighteen quills, the first being obsolete, the next three nearly equal and longest; the secondaries very long, emarginate, excepting the inner three, which are tapering, and of which one is so elongated as nearly or entirely to equal the



Fig. 148.

longest primaries. The tail, of twelve narrow feathers, is always long, in some double the length of the body, and more or less rounded or graduated, although sometimes also emarginate.

The skeleton is of very delicate structure, the flat bones being so thin as to be transparent; but it does not differ in any essential respect from that of the Alaudinæ, Turdinæ, and Saxicolinæ.

The Motacillinæ reside in open pastures and meadows, frequent the sides of streams and lakes, run with great celerity, and have a remarkable habit of almost constantly vibrating their body and especially the tail. Their flight is rapid and undulatory, buoyant and graceful in the highest degree; their voice shrill, and their musical powers of a very inferior order, most of them being destitute of song.

The Budytæ have feet like those of the Pipits, and their bill is very similar, so that the Motacillinæ are closely connected with the Alaudinæ, from which, however, they are distinguished by being of a more slender form, by having the bill

straighter and more attenuated, the claws shorter, and the tail much more elongated. The bill and feet of the Motacillæ resemble those of the Saxicolæ, from which they differ in the elongation of the tail; and in Enicurus, the bill in some measure resembles that of the Flycatchers, although the feet are much larger than those of that group.

The plumage of the Motacillinæ is changed in the warm season; but in the Motacillæ an additional partial alteration takes place in spring, by which the colours of the fore part of the neck are altered.

SYNOPSIS OF THE BRITISH GENERA AND SPECIES.

GENUS II. BUDYTES. ~~QUAKETAIL.~~

Bill of moderate length, slender, straight, a little broader than high at the base, compressed towards the end, its upper outline slightly declinate, at the end very slightly declinato-arcuate; the tip acute, with an obscure notch; toes of moderate length, much compressed; hind claw elongated, slender, tapering, extremely compressed, little arched; wings long, broad, the first primary wanting, the next three longest, one of the inner secondaries as long when the wing is closed; tail long, straight, slender, rounded at the end.

1. *Budytes flava. Blue-headed Quaketail.* Male with the head and hind-neck greyish-blue; a white band over the eye; the upper parts yellowish-green, the lower bright yellow. Female similar, but with the head brownish-grey, the lower parts paler, the throat white.

2. *Budytes Rayi.* ~~*Green-headed*~~ *Quaketail.* Male with the head greenish-yellow; part of the forehead, a streak over the eye, the cheeks, and lower parts bright yellow; the upper parts pale greenish-yellow tinged with brown. Female similar, but with the head yellowish-green, and the lower parts paler. Young light brownish-grey above, the lower parts cream-coloured, with an obscure dusky crescent on the fore-neck.

GENUS I. MOTACILLA. WAGTAIL.

Bill of moderate length, slender, straight, a little broader than high at the base, compressed towards the end, its upper outline slightly declinate at the base, then straight, and at the end very slightly declinato-arcuate; the tip acute, with an obscure notch; toes rather short, moderately compressed; hind claw of moderate length, stout, compressed, much arched; wings long, broad, the first primary wanting, the next three longest, one of the inner secondaries as long; tail very long, straight, slender, rounded at the end.

1. *Motacilla alba*. *~~Grey and white~~ White Wagtail.* Male in winter with the upper parts light grey, the head, nape, and upper tail-coverts black; the forehead, sides of the head, throat, lower parts, and two bands on the wing, white; a black crescent on the fore-neck. Female similar, but with the black less extended on the nape, and the crescent on the fore-neck grey. Male in summer with the whole fore-neck glossy black. Female similar, with the fore-neck greyish black. Young grey above, greyish-white beneath, the fore-neck mottled with grey.

2. *Motacilla Yarrelli*. *~~Pied~~ Yarrell's Wagtail.* Male in winter with the upper parts and a crescent on the fore-neck, black, the middle of the back greyish; the forehead, sides of the head, throat, lower parts, and two bands on the wing, white. Female similar, with more grey on the back. Male in summer with the whole fore-neck and back glossy black. Female similar, with the black less deep, and more grey on the back. Young grey above, greyish-white beneath, the fore-neck mottled with dusky.

3. *Motacilla Boarula*. *Grey ~~and yellow~~ Wagtail.* Male in winter with the head and back bluish-grey tinged with green, the rump greenish-yellow, the throat greyish-white, the lower parts bright yellow. Female similar, but somewhat paler. Male in summer with a black patch on the throat, laterally edged with white bands. Female similar, but paler, with the throat greyish-black. Young like the female, with a dusky crescent on the fore-neck.

Genus II. BUDYTES. QUAKETAIL.

Bill of moderate length, slender, straight, broader than high at the base, compressed towards the end; upper mandible with the dorsal outline slightly declinate at the base, very slightly declinato-arcuate towards the end, the ridge narrow at the base, the nasal depression being rather large, the sides toward the end convex and incurved, the edges slightly inflected and overlapping, soft and rounded at the base, sharp in the rest of their extent, with a very slight notch close to the tip, which is slightly declinate, narrow, and rounded; lower mandible with the angle of moderate length, narrow, and obtuse, the dorsal outline slightly ascending, straight, the back flattened at the base, narrow in the rest of its extent, the sides erect and convex, the edges slightly inclinate and sharp; the gape-line straight, a little deflected at the base.

The upper mandible is narrow and concave within, with a median prominent line; the palate flat, with two prominent ridges; the posterior aperture of the nares oblongo-linear, and margined with small pointed papillæ. The lower mandible is very narrow and concave, with a median prominent line. The tongue is very slender, sagittate and papillate at the base, tapering to a slit point. The œsophagus is of moderate width, without crop or dilatation; the proventriculus oblong, with oblong glandules. The stomach is a gizzard of considerable power, oblong, compressed; its muscular coat thick, its lateral muscles distinct, the tendons large; the inner coat of moderate thickness and nearly smooth. The intestine is short, of moderate width; the cœca very small and cylindrical; the rectum very short, with an oblong dilatation.

Nostrils direct, perforate, small, elliptical, in the fore part of the nasal depression, which is rather large and feathered, unless in its anterior portion. Eyes of moderate size; eyelids feathered, with a narrow, bare, crenate margin. External aperture of the ear large, elliptical.

The general form is slender, the body ovate, the neck rather short, the head ovato-oblong, small, and narrow. The feet of ordinary length, slender; the tarsus much compressed, anteriorly covered with eight scutella, sharp behind. Toes of moderate length, much compressed; the first large, narrow beneath; the second and fourth about equal; the third much longer, and united to the fourth as far as the second joint. Claws long, laterally channelled, extremely compressed, slightly arched, that of the hind toe very long. Fig. 149.

Plumage soft and blended; the feathers oblong or ovate, rounded, with the barbs loose at the end; bristle-feathers at the base of the upper mandible extremely small. The wings are long, broad, and rather pointed, of eighteen quills, of which nine are primary, the first three nearly equal and longest; one of the inner secondaries as long, when the wing is closed. Tail long, slender, rounded, of twelve narrow, weak feathers.

The Quaketails form the transition from the Pipits to the Wagtails, but are more allied to the latter, from which indeed they differ only in having the tail shorter, and the claws less arched and longer, that of the hind toe especially being much elongated. In the form of their wings they resemble the Pipits and Larks, which pass into the Lark Buntings and Buntings, as well as the Wagtails, which lead to the Saxicolæ.

These birds feed upon insects and larvæ, frequent open pastures, ploughed fields, and moist meadows, run with great celerity, often pursue insects on wing, sometimes on plants, and fly with rapidity in beautiful curves. On settling, they vibrate and expand their tail, like the birds of the ~~next~~ *last* genus; their notes are shrill and frequently repeated, but they are destitute of song. They nestle among the herbage or in stony places. Two species occur in this country, both migratory, one pretty common and generally distributed, the other very rare.



Fig. 149.

BUDYTES FLAVA. BLUE-HEADED QUAKETAIL.

YELLOW WAGTAIL. BLUE-HEADED WAGTAIL.

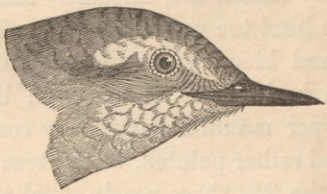


Fig. 150.

Motacilla flava. Linn. Syst. Nat. I. 331.
Bergeronette printaniere. Motacilla flava. Temm. Man. d'Orn. I. 260 ; Supp. 181.
Motacilla neglecta. Blue-headed Wagtail. Jen. Brit. Vert. An. 116.

Male with the head, hind-neck and ear-coverts greyish-blue ; a white band over the eye ; the upper parts yellowish-green, the lower bright yellow, the two lateral tail-feathers on each side partially white. Female similar, but with the head brownish-grey, the upper parts tinged with greyish-brown, and the throat white. Young light brownish-grey above, the wings and tail dusky, the lateral feathers of the latter as in the adult, the lower parts yellowish-white, with an obscure dusky crescent on the fore-neck.

Male.—The Blue-headed Quaketail is in form, proportions, and plumage precisely similar to the Green-headed, from which however it differs in the colour of the head. The bill is slender, straight, tapering, the tip of the upper mandible slightly deflected ; its dorsal outline straight, the sides convex, the edges sharp and a little inflected, with a slight notch, the lower mandible with the angle rather long and narrow, the dorsal line ascending and nearly straight, the edges sharp and inclinate ; the gape-line straight. The nostrils elliptical, one twelfth of

an inch long. The feet slender; the tarsus much compressed, the upper scutella indistinct; the toes slender and much compressed, the lateral toes about equal, the middle toe with its claw a little shorter than the hind toe and its claw, which latter is a little longer than the first joint, tapering, much compressed, and slightly curved.

The plumage is soft and blended, the feathers ovate and rounded; the bristle-feathers at the base of the bill very small. The wings are rather long; the primaries nine, the secondaries nine; the first quill is thus wanting, the first and second are about equal, the third a little shorter; the inner primaries and outer secondaries emarginate, the inner three tapering, and one of them as long when the wing is bent as the outer primaries. The tail is very long and slightly rounded.

The bill is black, the feet brownish-black. The upper part of the head, the hind-neck, the loral space, and the ear-coverts are greyish-blue; a white band extends from the bill over the eye and ear; the rest of the upper parts are yellowish-green, tinged with brown, the central part of each feather being of the latter colour, the rump greenish-yellow. The wing-coverts and quills are dusky brown, all margined with yellowish-white, the inner secondaries with broad edges; the first row of small coverts and the secondary coverts largely tipped with the same. The tail and its coverts blackish-brown, the middle feathers edged with greenish-yellow; the two outer on each side white, excepting an oblique band, including part of the outer web at the base, and the greater portion of the inner web, extending to half an inch from the end. The lower parts are bright yellow; but a small portion of the throat and a band on each side of the neck are white.

Length to end of tail $6\frac{1}{2}$ inches; bill along the ridge $\frac{5\frac{3}{4}}{12}$; along the edge of the lower mandible $\frac{8}{12}$; wing from flexure $3\frac{2}{12}$; tail $2\frac{10}{12}$; tarsus $\frac{10\frac{1}{2}}{12}$; first toe $\frac{3\frac{1}{2}}{12}$; its claw $\frac{5\frac{1}{4}}{12}$; middle toe $\frac{7}{12}$; its claw $\frac{3}{12}$.

Female.—The bill and feet are brownish-black; the yellow of the lower parts is paler, and on the throat and neck fades into yellowish-white; there are some brown feathers on the

lower part of the fore-neck ; the head and hind-neck are of a duller grey, and the rest of the upper parts more tinged with greyish-brown.

Length to end of tail $6\frac{1}{4}$ inches ; bill along the ridge $\frac{5\frac{1}{2}}{12}$; wing from flexure $3\frac{2}{12}$; tail $2\frac{10}{12}$; tarsus $\frac{10\frac{1}{2}}{12}$; hind toe $\frac{3\frac{1}{2}}{12}$, its claw $\frac{5}{12}$.

Habits.—This species is said to be generally distributed over the continent, and to frequent the margins of lakes and rivers, as well as meadows, where it searches for insects and larvæ, on which it exclusively feeds. I am not aware of its having been found in Scotland, being of opinion that the individuals mentioned as having occurred there belonged to the next species, but of which the feathers of the head appeared greyish-brown, owing to the abrasion of their yellowish margins. It was first distinguished from that species by Mr Gould, who gave it the name of *Motacilla neglecta*, but who subsequently found it to be the common Yellow Wagtail of the Continent, and therefore, probably the *M. flava* of Linnæus. In summer it is said to extend its migration to Sweden, Norway, and Lapland ; and it is stated to occur in Japan and Northern India, from which latter country there is a specimen in my collection, and another in the museum of the University of Edinburgh. The habits of this species have not been minutely detailed by authors, and I have had no opportunities of seeing it alive, the descriptions here given being taken from French specimens ; but it is said to resemble the next in this respect as well as in its nidification, its eggs, five or six in number, being scarcely distinguishable from those of that bird.

Variations.—I have seen a pure white individual. The lateral tail-feathers vary in the proportion of white, as in the other species. Sometimes the outer quill is longest, and sometimes the next.

Changes.—Toward autumn the yellowish tints of the upper parts disappear, the plumage becoming greyish-brown, and the lower parts are almost white. A specimen in which the moult

is just commencing, has all the upper parts light greyish-brown, with scarcely the least tinge of yellow; the lower parts dull white, with only a patch of yellow on the fore-neck, and another on the abdomen. This individual shews that greyish-brown and white are the colours, when the feathers have been worn, and their tints faded. A Scottish female of the next species in this state, can scarcely be distinguished. When the moult is completed, however, the feathers are margined with greenish-yellow, and the quills and their coverts, together with the first row of small coverts are conspicuously edged with yellowish-white, the lower parts bright yellow.

Remarks.—The differences between this and the next species are so slight that some suspicion of their identity might be entertained. It is impossible to distinguish the females in some states, and I have shot individuals of the latter in which the head was nearly bluish-grey, and the line over the eye almost white. Yet it does not appear that specimens of it have been met with having the upper part of the head and neck of that pure leaden grey seen in continental specimens of the present species.

Mr Yarrell states that "the first British specimen of this bird, obtained in October 1834 on Walton Cliffs, near Colchester, was shot by Mr Henry Doubleday." It is mentioned in the first volume of the Magazine of Zoology and Botany, that "an adult male was killed by Mr Hoy in the parish of Stoke Nayland (erroneously printed Maryland), Suffolk, on the 2d of May 1836;" and that another "male was shot a little west of Newcastle on the 1st" of the same month. Another "fine male in his full summer dress was taken in April 1837 near Finsbury, a short distance north-east of London," and is represented in Mr Yarrell's History of British Birds.

BUDYTES RAYI. THE GREEN-HEADED QUAKETAIL.

YELLOW WAGTAIL. SPRING WAGTAIL. SUMMER WAGTAIL. OAT-SEED BIRD.



FIG. 151.

Yellow Wagtail. Mont. Orn. Dict. and Suppl.
Bergeronette flavéole. Motacilla flaveola. Temm. Man. d'Orn. III. 183.
Yellow Wagtail. Motacilla flava. Selb. Illustr. I. 255.
Motacilla flava. Yellow Wagtail. Jen. Brit. Vert. An. 115.

Male with the head greenish-yellow, the cheeks and lower parts bright yellow, the back pale greenish-brown, the two lateral tail-feathers on each side partially white. Female similar, but with the head yellowish-green, and the lower parts paler. Young light brownish-grey above, the wings and tail dusky, the lateral feathers of the latter as in the adult, the lower parts cream-coloured, with an obscure dusky crescent on the fore-neck.

MALE.—This species resembles the preceding in form, having the body equally slender, the neck rather short, the head small, elongated, and compressed, the wings rather long, the tail elongated, and the colours very similar, with the exception of those of the head. As the species has not come under my observation in its winter plumage, I must confine my description to the state in which it presents itself to us in summer.

The bill is slender, straight, tapering, the tip of the upper mandible scarcely deflected; its dorsal outline straight, the sides convex, the edges sharp, and a little inflected, with a slight notch, the ridge obtuse but narrow; the lower mandible with the angle nearer the base than the end, narrow and rounded, the dorsal line ascending and nearly straight, the edges sharp and slightly inclinate; the gape-line straight. Both mandibles are very narrow and concave within, with a median prominent line; the palate flat, with two ridges; the tongue emarginate and papillate at the base, very slender, tapering to a slit and slightly lacerated point, and four-twelfths and a half in length. The œsophagus is two inches long, two and a half twelfths in width; the stomach six-twelfths in length, five-twelfths in breadth, moderately muscular, with a longitudinally rugous epithelium; the intestine seven inches long, its duodenal portion two-twelfths in diameter, the cœca a twelfth and a half in length, and an inch distant from the extremity.

The nasal depression is rather large, the nostrils elliptical, one-twelfth long. The aperture of the eyes is two-twelfths in diameter, that of the ear three-twelfths. The feet are slender, the tarsus much compressed, the scutella indistinct unless at its lower part; the toes slender and much compressed, the lateral toes about equal, the middle toe with its claw a little shorter than the hind toe and claw.

The plumage is soft and blended, the feathers ovate and rounded, those on the back somewhat distinct. The bristle-feathers at the base of the bill are very small. The wings are rather long; the primaries nine, the secondaries nine; the second quill longest, the first scarcely shorter; the inner primaries and outer secondaries emarginate, and one of the latter elongated as in the other species. The tail very long and slightly rounded, its feathers narrow.

The bill and feet are black; the irides brown. The lower parts are rich chrome yellow. The fore part of the head, a line over the eyes, and the cheeks, bright yellow; the rest of the head and the hind-neck are yellow tinged with greyish-green. The back is pale greenish-brown, the central parts of the feathers being brown, their loose margins yellowish-green. The

quills and coverts are dusky-brown edged with whitish, the inner secondaries with yellowish-white ; the first row of small coverts largely tipped with pale yellow. The tail is also dusky, the middle feathers edged with greenish-yellow, but the two outer on each side are chiefly white, that colour being disposed so as to include nearly the whole of the outer web and shaft, and the distal half of the inner web.

Length to end of tail $6\frac{3}{4}$ inches ; extent of wings $10\frac{1}{2}$; bill along the back $\frac{6}{12}$, along the edge of lower mandible $\frac{9}{12}$; tarsus $\frac{10}{12}$; first toe $3\frac{1}{2}$ twelfths, its claw $\frac{5}{12}$; second toe $\frac{5}{12}$, its claw $\frac{2}{12}$; third toe $\frac{7}{12}$, its claw $\frac{3}{12}$; fourth toe $\frac{5}{12}$, its claw $\frac{2}{12}$; wing from flexure $3\frac{2}{12}$; tail $2\frac{10}{12}$.

Female.—The bill and feet are brownish-black ; the yellow of the lower parts is paler, and on the neck and throat fades into greyish-white ; the line over the eye is yellowish-white ; the upper part of the head and the back are light greyish-brown tinged with green, and the rump is green as in the male. Tongue four and three twelfths long ; œsophagus two inches long, its diameter two and a half twelfths. Stomach six twelfths long ; intestine seven inches and two-twelfths long ; its diameter two-twelfths ; cœca a twelfth and a half long, and one inch distant from the extremity.

Length to end of tail $6\frac{3}{4}$ inches ; extent of wings 10.

Habits.—In the beginning of July 1831, during a continuance of hot and dry weather, I found a considerable number of Wagtails collected about a pool near Inverleith, the stream that flowed from which was bordered by willows. Among them were several individuals of the present species, which, as well as the others, readily perched on the trees and bushes when disturbed, and occasionally pursued insects on wing, in the manner of Flycatchers. I shot a young bird of which the plumage was scarcely complete, and of which I made a drawing. This was the first time that I had an opportunity of seeing the Yellow-headed Quaketail alive.

One evening in July 1834, while looking for birds in the meadows to the west of Edinburgh, my notice was attracted by

great numbers of Wagtails which were scattered about. These meadows are artificially irrigated with water from the town, impregnated with putrescent matter, and produce abundant crops of grass, which are cut down every now and then as green food for cattle. Phleum pratense, Poa trivialis, Glyceria fluitans, and other species form the valuable part of their produce; but these plants are intermixed with Caltha palustris, Lychnis Flos-cuculi, Rumex obtusifolius, and a variety of less remarkable weeds. On the stems of the docks I observed several small birds which engaged my attention by the peculiarity of their motions, although on watching them attentively I supposed them not unlike those of the Grey Wagtail. That bird however I had never seen in flocks in such a place; nor had I previously observed Wagtails searching for insects on the stems and among the leaves of plants. So I shot several specimens, and finding them different from any that I remembered to have examined, was not a little pleased to think that I had fallen upon something rare. On comparing them with the descriptions in M. Temminck's manual, I found nothing there that agreed precisely with them, although with the exception of the "Tête et nuque d'un cendré bleuâtre tres pur" of his Motacilla flava, all the particulars of his characters of that bird corresponded sufficiently with mine. Having made a drawing of them, and noted their characters, I allowed the matter to remain undecided; but afterwards, hearing of Mr Gould's observations, supposed that I had found his Motacilla neglecta. I believe several hundreds of them, old and young, were collected in these meadows, and busily employed in picking up the insects that abounded there. Their flight was performed in long undulations, like that of the Grey Wagtail, and they seldom shifted from place to place by short starts. In alighting they spread or rather jerked out their tail, so as to render conspicuous the white colour of the lateral feathers. They seemed to prefer the large leafy plants, such as the docks; but they also settled in places where the grass had been recently mown, and there ran about precisely in the same manner as the Wagtails. They remained in the meadows for several days, and then disappeared.

In so far as I have observed, there is nothing in the habits of this species differing from those of the Wagtails properly so called, excepting its being more addicted to searching for insects upon plants. For some time after its arrival in the end of spring, it keeps in the pastures and ploughed fields, where it runs about with great celerity, vibrating its body, and at intervals expanding its tail, as it searches for insects, after which it now and then makes short excursions on wing. I have not met with it in the northern parts of Scotland; but about Edinburgh it is not very rare during the summer. In England, according to authors it is pretty generally distributed. Montagu states that it arrives there about the time when the Pied Wagtail takes its departure for the north. In Scotland it disappears about the middle of August, and in the south of England towards the end of September. It is a very remarkable circumstance that this species has hitherto been very seldom observed on any part of the continent; and that although described by Willughby, Ray, Montagu, Mr Selby, and others, under the name of Motacilla flava, the Yellow Wagtail, it was considered as identical with the Motacilla flava of Linnæus, Temminck, and other continental authors, which however they have characterized as having the head grey or ash-coloured, until Mr Gould recently pointed out the differences between it and the other species.

According to Montagu, "It frequents arable land, especially in the more champaign parts, sometimes uncultivated ground interspersed with furze; is also partial to bean fields: in all such places it breeds, and does not seem to regard water so much as either the other species. The nest is always placed on the ground, composed of dried stalks and fibres, lined with hair. The eggs are four or five in number, not very unlike those of the Sedge Warbler, of a pale brown, sprinkled all over with a darker shade, in some very obscurely, weighing about twenty-seven grains."

Young.—The young when just fledged have the bill and feet light brown, the irides dusky; the upper parts light yellowish-brown; the quills and wing-coverts blackish-brown, edged and

tipped with ochre-yellow; the tail-feathers similar, except the two lateral on each side, which are as in the adult; the sides of the head and the lower parts brownish-white tinged with yellow, or cream-coloured; a dusky band over the eye; the ear-coverts tinged with brown; a band of dusky spots down each side of the neck to the fore part of the breast, where the two bands meet; the tibial feathers ochre-yellow, indistinctly spotted with dusky.

When they are completely fledged, and have been abroad for some time, they are as follows. The bill light dusky, its margins and the base of the lower mandible pale grey tinged with red. The feet are of a leaden tint, the under part of the toes of a dingy yellow; the claws light brown. The general colour of the upper parts is light brownish-grey, the rump pale yellowish-brown; the wings and tail dusky, much darker than in the adult, the feathers largely edged with cream-colour, the larger and smaller coverts conspicuously tipped with the same. The two lateral tail-feathers on each side as in the adult, the next with a small margin of white, and all the rest in some degree edged with the same. There is a cream-coloured line over the eye, and above it a dusky band. The lower parts are cream-coloured, the neck tinged with red, the hind parts with yellow; and on the fore-neck is an obscure narrow gorgelet of dusky spots.

Remarks.—This and the preceding species are intimately allied to the Pipits, in the form of the bill and feet, the hind claw being considerably elongated, and in their general form, motions, mode of flight, and manners. Nothing can exceed the elegance of the flight of the present species, which is performed in long and graceful undulations. Its notes also have a considerable resemblance to those of the Pipits. At the same time, I conceive that there is no very substantial reason for separating it and the Grey-headed species generically from the Wagtails.

Genus I. MOTACILLA. WAGTAIL.

Bill of moderate length, slender, straight, broader than high at the base, compressed towards the end; upper mandible with the dorsal outline slightly declinate at the base, very slightly declinato-arcuate towards the end, the ridge narrow at the base, the nasal depression being large, the sides towards the end convex and incurved, the edges slightly inflected and overlapping, soft and rounded at the base, sharp in the rest of their extent, with an obscure notch close to the tip, which is slightly declinate, narrow, and rounded; lower mandible with the angle of moderate length, narrow, and obtuse, the dorsal outline slightly ascending, straight, the back flattened at the base, narrow and convex in the rest of its extent, the sides erect, and slightly convex, the edges slightly inclinate and sharp; the gape-line straight, a little deflected at the base.

The upper mandible is concave and narrow within, with a central prominent line; the palate flat, with two prominent ridges; the posterior aperture of the nares oblongo-linear, and edged with small pointed papillæ. The lower mandible is very narrow, and concave, with a median prominent line. The tongue is very slender, sagittate at the base, and finely papillate, tapering to a slit point. The œsophagus is of moderate width, nearly equal throughout, without crop or remarkable dilatation; the proventriculus oblong, with oblong glandules. The stomach is a gizzard of considerable power, oblong, compressed; its muscular coat thick, its muscles distinct, the tendons large; the inner coat of moderate thickness, and internally smooth. Intestine short, thin, of moderate width; the cœca very small and cylindrical; the rectum very short, with an oblong dilatation. Plate XIII, Fig. 5.

Nostrils direct, perforate, small, elliptical, in the lower and fore part of the nasal depression, which is large, and feathered,

except in its anterior portion. Eyes of moderate size; eyelids feathered, with a narrow, bare, crenate margin. External aperture of the ear large, transversely oval.

The general form is remarkably slender, the body ovate, the neck of moderate length, the head ovato-oblong, small, and narrow. The feet of ordinary length, slender; the tarsus much compressed, anteriorly covered with seven scutella, sharp behind. Toes of moderate length, much compressed; the first large, narrow beneath; the second and fourth about equal; the third much longer, united to the fourth as far as the second joint. Claws rather long, arched, laterally channelled, extremely compressed, tapering to a fine point, laterally grooved, that of the hind toe much longer.

Plumage soft, blended; the feathers oblong, rounded, with loose barbs, and slender plumules consisting of a few long filaments. The frontal feathers encroach on the nasal membrane, and are very short and roundish. No bristle-feathers along the base of the upper mandible in adult birds, although in young individuals they exist, but are very small. The wings are long, broad, and rather pointed, of eighteen quills, of which nine are primary, the first three nearly equal and longest; the secondaries very long, one of them nearly as long as the outer primaries when the wing is closed; the inner primaries and outer secondaries emarginate. Tail very long, straight, slender, rounded, of twelve narrow, weak feathers.

The Wagtails are very intimately allied to the Pipits, from which they differ chiefly in having the tail much more elongated, and the claws shorter, while at the same time the colours of their plumage are more beautiful, and disposed in uniform masses. Their bill is almost precisely similar to that of the Saxicolæ and Sylviæ, and is scarcely distinguishable from that of the Anthi.

The birds of this and the preceding genus are remarkable for their peculiarly slender and elegant form, and for the vibratory motion which their body exhibits while they are standing or walking. In this respect they resemble the Pipits and Totani, as well as some other genera, but their tail being so much more elongated, the motion in question is more observable in them

than in any other group; whence their popular and generic names. They feed upon insects, pupæ, and larvæ, frequent moist meadows, watery places in general, and especially the muddy margins of streams and lakes. While searching for food they walk with alternate steps, often run with great celerity, and occasionally pursue an insect on wing. Their flight is rapid, performed in beautiful, strongly marked curves, and affording a most typical example of the undulatory variety. On settling, they vibrate as if on a pivot, spread out and contract their tail, keeping it considerably inclined upwards. Their notes are short, shrill, rather weak, and frequently repeated. They nestle among the herbage near water, or among stones, form a rather bulky nest of slender stalks and blades of grass, lining it with hair, and deposit from four to six spotted eggs.

They moult in autumn like the other genera of this family; and in spring undergo a partial change of plumage, the feathers of the head, neck, and body being renewed then, and partially altered in colour. Three species are met with in this country: the Grey-and-White Wagtail, the Pied or Black-and-white Wagtail, and the Grey-and-yellow Wagtail.



Fig. 152.

MOTACILLA ALBA. THE GREY-AND-WHITE WAGTAIL.

GREY WAGTAIL. CINEREOUS WAGTAIL.

Motacilla alba. Linn. Syst. Nat. I. 331.
La Lavandiere. Motacilla. Briss. Ornith. III. 461.
Motacilla alba. Gmel. Syst. Nat. I. 960.
Motacilla alba. Lath. Ind. Orn. II. 501.
Motacilla cinerea. Gmel. Syst. Nat. I. 961.
Motacilla cinerea. Lath. Ind. Orn. II. 502.
Cinereous Wagtail. Motacilla cinerea, Steph. Shaw's Zool. X. 550.
Bergeronette grise. Motacilla alba. Temm. Man. d'Orn. I. 255.

Male in winter with the forehead, sides of the head, throat and lower parts white; a black crescent on the fore-neck; the head, nape, and upper tail-coverts black; the back and sides ash-grey; wing-coverts blackish, the larger margined and tipped with white; quills greyish-black, edged with white; tail black, the two lateral feathers white, excepting part of their inner webs. Female similar, but with the black less extended on the nape, the wing-coverts and crescent on the fore-neck dusky-grey.

Male in summer, with the whole fore-neck black, the upper parts of a darker grey. Female similar, but with the fore-neck greyish-black.

Young light grey above, greyish-white beneath, with a grey crescent on the fore-neck.

Male.—The Grey-and-white Wagtail, which is generally distributed on the continent, was described by Mr Stephens, in 1817, as different from our common Black-and-white Wagtail; but the Motacilla cinerea of Gmelin and Latham, to which he refers as a compiler, was usually considered as the young of the former bird, and the continental Grey-backed Wagtail was by the ornithologists of this country confounded with the Pied Wagtail, until the two species were clearly

distinguished from each other by Mr Gould, to whose ~~almost~~ unrivalled exertions the science is so much indebted. In form and proportions, the two species are almost exactly alike, the only difference being that the present Wagtail is rather smaller. Its bill is rather short, slender, straight, tapering, compressed towards the end, and rather sharp-pointed; the gape-line nearly straight; the upper outline declinate, and straight, until near the end, when it becomes slightly curved downwards; the lower outline ascending, and nearly straight, the edges inflected. The nostrils are elliptical, one twelfth of an inch long. The feet are of moderate length; the tarsus slender, much compressed, its upper scutella blended; the first toe with eight, the second with nine, the third thirteen, the fourth twelve scutella. The claws are of moderate length, rather slender, extremely compressed, laterally grooved, moderately arched, tapering to a fine point, but in old birds often blunted.

The plumage is soft and blended. The wings are rather long, the primary quills nine, the first scarcely longer than the third, and only half a twelfth shorter than the second; the first five rounded, the rest emarginate; the secondaries nine, the first five emarginate, the sixth elongated and tapering, so as to extend as far as the outer primaries when the wing is closed, the rest graduated and tapering to a rounded point. The tail is very long, rounded at the end, the feathers nearly straight, and narrow.

The bill and feet are deep black. The upper part of the head and a portion of the nape are black, as are the upper tail-coverts and some of the feathers in their vicinity; the back light ash-grey; a broad band on the forehead, the sides of the head, and all the lower parts white, excepting the sides, which are grey, and a crescent of black on the fore-neck. The wings are brownish-black, the first row of smaller coverts largely tipped with white; the secondary coverts broadly margined and tipped with the same; all the quills more or less edged with white, the inner secondaries more broadly. The tail is black, excepting the two outer feathers on each side, which are white, with a black stripe along the inner margin, and a small portion at the base also black.

Length to end of tail $7\frac{1}{4}$ inches; bill along the ridge $\frac{5\frac{1}{2}}{12}$, along the edge of lower mandible $\frac{8\frac{1}{2}}{12}$; wing from flexure $3\frac{2}{12}$; tail $3\frac{1}{2}$; tarsus $\frac{1}{12}$; first toe $\frac{4}{12}$, its claw $\frac{5\frac{1}{2}}{12}$; third toe $\frac{6}{12}$, its claw $\frac{5}{12}$.

Female.—The female differs from the male in having less black on the head, the wing-coverts grey, the quills and tail-feathers tinged with brown, and the crescent on the fore-neck dusky-grey.

Variations.—Individuals at this season vary a little in their tints. Some have been seen entirely white, or variegated with that colour.

Changes of Plumage.—The partial change which takes place in spring fills up the space intervening between the crescent on the fore-neck and the bill with deep black. A similar change is produced in the female, of which however the fore-neck is of a less deep tint.

Habits.—The above descriptions are taken from individuals obtained from the continent, where it appears to be generally distributed, while the next species, so common with us, is rarely met with, and that only in the north-western parts. Our common Black-and-white or Pied Wagtail was always considered to be the same as the Bergeronette grise or Motacilla alba of continental ornithologists until the differences between the two species were pointed out in the following terms by Mr Gould in the Magazine of Natural History, Vol. I., N. S., p. 459. "While engaged upon this tribe of birds during the course of my work on the *Birds of Europe*, I was equally surprised to find that the sprightly and pied wagtail, so abundant in our islands at all seasons, could not be referred to any described species, and that it was equally as limited in its habitat; for, besides the British islands, Norway and Sweden are the only parts of Europe whence I have been able to procure examples identical with our bird, whose place in the temperate portions of Europe is supplied by a nearly allied, but distinct species, the *true* M. alba of Linnæus; which, although abundant in

France, particularly in the neighbourhood of Calais, has never yet been discovered on the opposite shores of Kent, or in any part of England. As, therefore, our bird, which has always been considered as identical with the M. alba, proves to be a distinct species, I have named it after my friend W. Yarrell, Esq., as a just tribute to his varied talents as a naturalist.

"The characters by which these two species may be readily distinguished are as follows:—The pied wagtail of England (M. Yarrelli) is somewhat more robust in form, and in its full summer dress has the whole of the head, chest, and back, of a full deep jet black; while in the M. alba, at the same period, the throat and head alone are of this colour, the back and the rest of the upper surface being of a light ash-grey. In winter the two species more nearly assimilate in their colouring, and this circumstance has, doubtless, been the cause of their hitherto being considered as identical; the black back of M. Yarrelli being grey at this season, although never so light as in M. alba. An additional evidence of their being distinct (but which has, doubtless, contributed to the confusion) is, that the female of M. Yarrelli never has the back black, as in the male; this part, even in summer, being dark grey, in which respect it closely resembles the other species."

Individuals of this species I have several times met with in the south of Scotland. At least I am unable to distinguish them from undoubted French individuals. Its habits, as described by continental authors, seem to be precisely similar to those of M. Yarrelli. It is said to extend its migrations to the extreme north, to feed on insects and larvæ, which it procures in moist pastures, by the margins of pools and running waters, as well as in the streets of villages and towns, and even on the roofs of buildings, and to nestle in meadows, in the crevices of rocks, in holes of trees, or in walls, laying five or six eggs of a greyish-white colour, freckled with dusky.

Young.—The young have the bill and feet reddish-brown, the lower parts greyish-white; on the breast a greyish-brown or grey crescent; all the upper parts light brownish-grey, excepting the wings and tail, which are brownish-black, the latter with the outer feathers as in the adult.

MOTACILLA YARRELLI. ~~THE PIED~~ WAGTAIL.

Yarrell's

Pied Wagtail. WHITE WAGTAIL. BLACK-AND-WHITE WAGTAIL. WINTER WAGTAIL. WATER WAGTAIL. DISH-WASHER. BREAC-ANT'SIL.

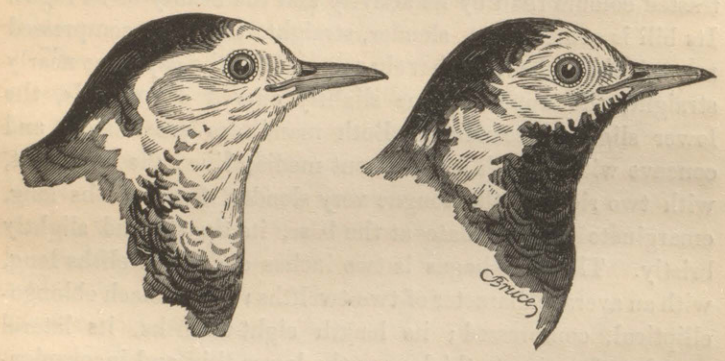


FIG. 153.

Motacilla alba. Lath. Ind. Orn. II. 501.
White Wagtail. Mont. Orn. Dict.
Pied Wagtail. Motacilla alba. Selb. Illustr. I. 251.
Motacilla alba. Pied Wagtail. Jen. Brit. Vert. An. 114.

Male in winter with the forehead, throat, lower parts, and two bands on the wing white; a black crescent on the fore-neck; the head, hind-neck and rump, black, the middle of the back grey; wing-coverts black, the larger margined and tipped with white; quills black, edged with white; tail black, the two lateral feathers white, excepting part of their inner webs. Female with more grey on the back, but otherwise similar. Male in summer with the whole fore-neck glossy black, as is the back, except a tinge of grey about the middle. Female similar, but with more grey. Young, light grey above, greyish-white beneath, with a dusky crescent on the fore-neck.

THE Pied Wagtail, which is the most common species in Britain, varies so much in colour at different seasons and at

different ages, that one might be very apt to consider a specimen obtained in summer specifically distinct from another procured in winter, or from a young bird. I shall, as usual, describe it first in its perfect or winter plumage.

Male in Winter.—Although a common, this is a very elegant bird, and attracts attention not less by its strongly contrasted colours than by its activity and the beauty of its flight. Its bill is rather short, slender, straight, tapering, compressed towards the end, and rather sharp-pointed ; the gape-line nearly straight, the upper outline slightly curved downwards, the lower slightly ascending. Both mandibles are narrow and concave within, with a prominent median line ; the palate flat, with two ridges ; the tongue very slender, five-twelfths long, emarginate and papillate at the base, its tip slit and slightly bristly. The œsophagus is two inches and six-twelfths long, with an average diameter of two-twelfths ; the stomach oblongo-elliptical, compressed ; its length eight-twelfths, its lateral muscles of moderate thickness, the lower thin and inconspicuous, the cuticular lining thin, rugous, and of a reddish-brown colour. The intestine is seven and a half inches long, its duodenal portion two-twelfths in diameter ; the rectum, which is an inch long, dilates to the diameter of half an inch, and the cœca are a twelfth and a half in length.

The nostrils are elliptical, and about a twelfth in length ; the aperture of the eyes two and a half-twelfths in diameter ; that of the ears three-twelfths. The feet are of moderate length, slender ; the tarsus much compressed, its scutella indistinct, excepting the lower ; the first toe with eight, the second with nine, the third with thirteen, the fourth with twelve scutella.



Fig. 154.

The claws are of moderate length, extremely compressed, laterally grooved, moderately arched, tapering to a fine point, but in old birds usually blunted by being worn ; the hind toe proportionally larger.

The plumage is soft and blended. The wings are rather

long, the primary quills nine, the second longest, the first longer than the third, but all nearly equal, the first four rounded, the rest emarginate; the secondaries nine, the first five emarginate, the sixth elongated and tapering, so as to extend nearly as far as the outer primaries when the wing is closed, the rest graduated and tapering to a rounded point. The tail is very long, rounded, of twelve nearly straight, narrow, rounded feathers. There are short bristle-feathers at the base of the upper mandible.

The bill and feet are deep black, as is the inside of the mouth; the irides dusky. The forehead, a narrow space over the eye, the cheeks, the throat, and the upper part of the fore-neck are white. A broad, transverse, semicircular band of black on the lower part of the neck and fore part of the breast, having the convexity downwards, and extending narrower upwards to near the base of the jaw. The rest of the lower parts white, the sides tinged with dark grey. The upper part of the head and the hind-neck deep black; the middle of the back and smaller wing-coverts greyish-black, that colour passing into deep black on the rump and upper tail-coverts. The quills and primary coverts are greyish-black, margined with greyish-white, the inner secondaries more broadly edged with white, the secondary coverts edged and broadly tipped with white, as is the next row, there being thus two transverse bars of white on the wing. The tail is black, the middle feathers narrowly edged with white, the greater part of the two lateral feathers and a narrow margin to the third white. Usually the outer feather is white, with a narrow black band along the inner edge, excepting towards the end; the next also white, with the inner black band more extended; the base of both black. The feathers of the tibia are black at the base, with white tips, as are the lower wing-coverts, the axillaries white.

Length to end of tail $7\frac{3}{4}$ inches; extent of wings $11\frac{1}{2}$; bill along the ridge $\frac{6}{12}$, along the edge of lower mandible $\frac{9}{12}$; wing from flexure $3\frac{1}{2}$; tail $3\frac{10}{12}$; tarsus $\frac{11}{12}$; first toe $\frac{4}{12}$, its claw $\frac{3\frac{1}{2}}{12}$; second toe $\frac{4\frac{1}{2}}{12}$, its claw $\frac{2\frac{1}{2}}{12}$; third toe $\frac{6}{12}$, its claw $\frac{3}{12}$; fourth toe $\frac{4\frac{1}{2}}{12}$, its claw $\frac{2}{12}$.

Female.—The female is similar to the male, but somewhat less. The colouring is the same, but the crescent on the lower part of the fore-neck is not so large; there is more grey on the back, and the edgings and tips of the wing-coverts are greyish-white. Young females have the back all grey.

Length $7\frac{1}{2}$ inches; extent of wings $11\frac{1}{4}$.

Male in Summer.—In spring a change is produced in the colouring by the addition of a patch of black feathers to the throat, filling up the space between the crescent and the bill; and as the season advances the extent of dusky grey on the back is diminished, not by the obliteration of the tips of the filaments, but by the substitution of black for grey feathers. In summer the male is as follows. The bill and feet are deep black. The forehead, cheeks, supraocular space, and a broad band passing down each side of the neck, are pure white; as are the breast, abdomen, lower tail-coverts, the two lateral tail-feathers on each side, except a band along their inner edges, the tips of the first row of small coverts, the edges and tips of the secondary coverts, and the outer edges of the three inner elongated secondaries; the sides however are tinged with grey. The fore-neck, lower part of the sides of the neck, the hind part of the head and neck, and the anterior half of the back are deep glossy bluish-black; the rump and upper tail-coverts similar, but a portion of the back still tinged with grey. Smaller wing-coverts brownish-black, edged with grey. Quills and tail-feathers, as in winter, but with the edges and tips worn.

Length of an individual in this state $7\frac{1}{2}$ inches; extent of wings 12; tarsus $\frac{11}{12}$; middle toe and claw $\frac{9}{12}$.

Female in Summer.—The female is similar to the male; but with more grey on the back, the black on the fore-neck tinged with grey; the lower parts greyish-white; the two middle feathers of the tail brownish-black.

Length to end of tail $7\frac{1}{2}$ inches; extent of wings $10\frac{3}{4}$.

Variations.—The principal variations that I have observed

refer to the changes of plumage, from the young to the adult state, and the winter to the summer tints. Sometimes in summer the back is entirely black; but generally there is more or less grey upon it. Even in winter I have seen it almost all black. Two large and apparently old males in my collection have the whole of the back deep black, with scarcely any tinge of grey. Albino individuals have been met with. Frequently adults have some yellow on the lower parts.

Changes.—This species moults from the end of summer to that of autumn, the new or winter plumage being complete by the end of October. I have found it so occasionally even by the end of August. In February another moult commences, and is completed by the middle of April. The feathers on the throat are first renewed, then those on the head, hind-neck, sides, back and lower parts in succession; but the quills and tail-feathers are not changed.

Habits.—The places usually frequented by this beautiful bird are the margins of streams, ditches, pools, and lakes. Towards the end of July, when the cares of rearing their young are over, they betake themselves in great numbers to the mouths of rivers, especially such as have marshy meadows along their sides, or muddy expanses to which the tides have access. Often one may see them wading in shallow places in quest of insects and worms, carefully holding up their tail to prevent its being draggled. If you watch the motions of an individual just coming up to join the party, you see it alight abruptly, twittering its shrill notes, and perching on a small stone, incessantly vibrate its body, and jerk out its tail. It now perhaps walks out into the water, and searches for food, or finding none flies to the shore, and runs along with great rapidity, stopping and stooping now and then to pick up a tiny wormlet, and momentarily spreading out its ever-vibrating tail. Its light footsteps leave no impression on the soft sand, and if it walk out upon the mud you wonder that its little toes do not get clogged; yet so rapid are its motions that it never sinks in the mire, and when the latter becomes too soft, it aids itself with its wings, or flies to a place where it

may find more secure footing. Now, it runs into the meadow, in pursuit of a fly, which it has no sooner caught than it spies another. The lazy geese, that have nibbled the grass bare, allow it to pass in the midst of them without molestation, or if some malicious gander or foolish gosling attempts to seize it, they find that they have given themselves too much credit for dexterity. There the cows are grazing, in the midst of a swarm of gnats and other insects, and the Wagtail has arrived in their vicinity. Running forward it catches a small fly, bends to one side to seize another, darts to the right after a third, and springs some feet into the air before it secures a fourth. Now see it picking among the old dung, where there are doubtless many larvæ concealed, again running off in pursuit of a fly, passing close to the cow's nose, or among her feet. There, while in pursuit, it encounters another of its own species; but they quarrel not, no doubt aware that there is room enough for them in the world, or even in the meadow, which you now see to be covered with wagtails, all busily occupied, some walking, others running, a few flying off, and many arriving. You may walk in among them; they are not very shy, for they will allow you to come within fifteen yards or sometimes less; and you may shoot as many as you please, for although some will fly off others will remain, and of the former a few will settle in the neighbourhood. Day after day you will find them here, when the tide is out. At other times you may search for them by the edges of the river, along the mill-dam, in the meadows, or even in the dry pastures. Occasionally you may see them perched on a roof, a wall, or a large stone, but very rarely on a tree or bush. Towards the middle of October many of them take their departure from the middle and southern parts of Scotland, and the rest wander over the country, frequenting watery places, and in hard weather approaching houses, searching the sides of the roads, the dunghills, and even the cottage doors. In most parts of the south of Scotland, they are not at all uncommon in winter; but in England they are much more abundant.

Aphodia and

About the beginning of March the migratory movement commences. Many remain in the south, but many also move north-

ward, and some arrive in the northernmost parts of Scotland and in the Outer Hebrides by the middle of March. It is a pleasant sight to see a small group of these birds walking and running with light and graceful steps along the newly turned furrows, on a cold dry morning in spring, when the east wind nips your fingers, and calls the blood into your cheeks. Rooks are scattered over the field, a few Hooded Crows are searching the distant end of the ridge, but they, having little dread of the ploughman, follow close upon his heels, or merely rise before the horses to resume their station when they have passed. At this season they obtain an abundant supply of food, and as the labouring lasts until the warm weather sets in, they need never suffer for lack of larvæ or insects. But at all seasons they are fond of rambling along the shores of the sea, and especially of estuaries, lakes and rivers.

About the middle of April, when they have paired and scattered over the country, they begin their preparations for the more important business of the season. Their nests are placed by the side of a river or stream, on a rocky bank, or among the grass, or on a heap of stones, or in a hole in a wall; and are composed of stems and leaves of withered grasses, mixed with some moss and leaves, and thickly lined with wool and hair; sometimes also with feathers. One now before me is of a somewhat flattened form, rather bulky, and rudely constructed, its external diameter five inches, the internal three and a half. The outer layer is composed of fibrous roots, stems and blades of grasses, intermixed with hair; the inner is a rude mass of hair of various kinds in tufts: human hair, black, brown, red, and sand-coloured; hair of dogs, cats, cows, and horses; hogs' bristles, and some cotton, thread and feathers. The eggs, five or six in number, are greyish-white, spotted all over with grey and brown, their average length nine-twelfths of an inch, their greatest breadth seven and a quarter twelfths.

Mr Weir has sent me the following notes illustrative of their habits while breeding.

"In the silver-mine quarry, in the neighbourhood of Bathgate, in May 1836, a pair of Pied Wagtails built their nest in an old wall, within a few yards of four men, who during the

most part of the day wrought at the limestone, which they occasionally blew up with powder. There the female laid and hatched four eggs. She and the male became so familiar with them that they flew in and out without shewing the least signs of fear, but if I approached (so quickly did they recognise a stranger) they immediately flew off, and would not return until I had departed at least five or six hundred yards from their abode."

"At Colinsheils Coal-work, in the Parish of Bathgate, Linlithgowshire, in May 1837, a pair of Pied Wagtails made choice of a singular situation where they erected their abode. It was beneath the strike-board, the wooden platform upon which the hutches, when filled with coals, are put. Although they struck against it with considerable force every time that they were drawn up to the top of the pit, the Wagtails nevertheless brought up to maturity a family of five young ones. With the colliers and other individuals connected with the work they became quite familiar, and flew in and out within a few feet of them without shewing the least symptoms of fear. The nest was built beneath that part of the platform upon which the banksman stood when he took hold of the hutches, and within three or four inches of his feet."

The ordinary note of this species is a sharp cheep. When alarmed or otherwise agitated, it flies about in a wavering manner, uttering a repetition of this note, and alarming the small birds in the neighbourhood. In sunny weather, especially in the mornings, it may be heard singing a pleasant, mellow, and modulated little song. Its flight is light, buoyant, and undulated: it propels itself by a repetition of smart flaps, ascends in a curved line, then ceases for a moment, descends in a curve, repeats the motion of its wings, and thus proceeds as if by starts, and with great velocity. Like many other birds, it is not fond of flying down the wind, but prefers an oblique course. In its habits it is quite terrestrial; at least I have never seen it search for food on trees, bushes, or even herbaceous plants, although it not unfrequently perches on a hedge or bush when disturbed in the breeding season.

It is curious to observe this species pursuing its prey in diffe-

rent localities. Thus, if you watch it for some time, when it has taken its station among stones or fragments of rock, you cannot fail to be pleased with the activity and dexterity which it displays. There it stands on the top of a stone, gently vibrating its tail, as if poising itself. An insect flies near, when it starts off, flutters a moment in the air, seizes its prey, and settles on another stone, spreading and vibrating its tail. Presently it makes another sally, flutters about for a while, seizes two or three insects, glides over the ground, curving to either side, and again takes its stand on a pinnacle. Again, you perceive several Wagtails flying in a wavering and buoyant manner over the rushes that skirt a large pool. It is a calm bright evening; the Coots are swimming about among the reeds and horsetails, uttering now and then their short loud trumpet-like cry, and the white-rumped Swallows are glancing along, now dipping lightly into the water to seize a fly, then darting here and there amongst the tiny insects that sport over the rank weeds. A Wagtail tries an excursion over the water, and although its flight does not equal that of the Swallow in elegance or velocity, it yet performs its part with considerable grace, flutters here a while, seizing a few insects, sweeps away in a curve, as if to acquire sufficient speed to keep it up without fluttering, turns suddenly, then shoots forth in a straight line, and thus continues for several minutes, until at length, fatigued, it betakes itself to the top of the stone wall, where it rests a little, and then commences a new excursion. Not unfrequently it may be seen running along the roof of a house in pursuit of insects, which it seizes in the manner of the Flycatcher or Redstarts. Often also it is to be found among rocks, and it is not uncommon on the streets of country villages, where it searches for insects chiefly along the gutters.

Young.—When fledged the young have the bill dusky, the edge of the upper mandible, and a considerable portion of the lower, yellowish; the feet brownish. The plumage of the upper parts is dull grey; the crown and hind part of the head, and the upper tail-coverts, darker. A narrow light-grey band over the anterior part of the forehead; a line over the eye, the

cheeks, and the fore part and sides of the neck, greyish-white ; a dusky line on each side down the throat, forming a curved band or crescent on the fore-neck ; the sides light grey ; the rest of the lower parts greyish-white, the breast tinged with yellowish-brown. The wing-coverts and quills are blackish-brown, edged with greyish-white, of which there are two bands formed by the tips of the first row of small coverts and secondary coverts. The middle tail-feathers are blackish-brown, the rest darker, but the two lateral on each side nearly all white. The feathers on the legs are greyish-brown tipped with whitish ; the lower wing-coverts similar.

Progress toward Maturity.—In the first brood, the moult commences in the end of July, and is completed by the end of September. The young birds are then similar to the old, but with more grey on the back, and the dark crescent on the breast less extended.

Remarks.—I do not feel perfectly satisfied as to the difference of Motacilla alba and M. Yarrelli, there being nothing in their form, size, and plumage sufficient to indicate distinct species, although the bill of the former seems to be generally more slender, and I should not be surprised to find that they are in reality one and the same. Whether this be the case or not, Motacilla alba of Linnæus is as much the present species as the preceding, since he refers to Willughby and Ray ; and therefore I think the Pied Wagtail might with propriety be named M. alba, and the Grey-and-white Wagtail M. cinerea. I have ascertained that the spring moult is complete, with the exception of the quills and tail-feathers, and not confined to the throat, as has been alleged. Thus in a specimen killed by Mr Weir on the 25th of February, there are young feathers on the throat, head, hind-neck, sides, back, and breast ; and the glossy entire feathers of the upper parts in April and May are seen to be fresh, and not merely changed in colour by abrasion of their filaments.

3. MOTACILLA BOARULA. THE GREY ~~AND YELLOW~~ WAGTAIL.

GREY WAGTAIL. YELLOW WAGTAIL.

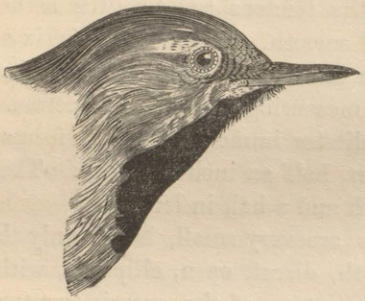


FIG. 155.

Motacilla Boarula. Linn. Mant. 527.
Motacilla Boarula. Lath. Ind. Orn. II. 502.
Motacilla melanops. Lath. Ind. Orn. II. 503.
Grey Wagtail. Mont. Orn. Dict.
Bergeronette jaune. Temm. Man. d'Orn. I. 257.
Grey Wagtail. Motacilla Boarula. Selb. Illustr. I. 253.
Motacilla Boarula. Grey Wagtail. Jen. Brit. Vert. An. 115.

Male in winter with the head and back bluish-grey tinged with green, the rump greenish-yellow, the throat greyish-white, the lower parts bright yellow. Female similar, but somewhat paler. Male in summer with a black patch on the throat, laterally edged with white bands. Female similar, but paler, and having the black on the throat tinged with grey.

MALE.—This remarkably elegant and beautiful bird is somewhat smaller than the Pied Wagtail, which however it exceeds in length, its tail being proportionally longer. The bill is very slender, straight, tapering, compressed towards the end, and in all essential respects as described in the generic charac-

ter. Both mandibles are narrow and concave within, with a prominent median line; the palate flat, with two ridges; the tongue very slender, five-twelfths long, emarginate and papillate at the base, grooved above, its tip slit and slightly fringed. The œsophagus is two and a half inches long, with an average diameter of two-twelfths; the proventriculus five-twelfths long. The stomach is oblongo-elliptical, compressed, its length eight-twelfths, its greatest breadth five and a half twelfths, its muscles distinct, the tendons two-twelfths across, the cuticular lining thin and smooth. The intestine is six and a half inches long, of nearly uniform diameter as far as the cœca, its duodenal portion measuring two-twelfths across. The rectum is an inch long, dilates immediately, and forms a roundish sac at its lower part, half an inch in width. The cœca are cylindrical, a twelfth and a half in length.

The nostrils are very small, being only three-fourths of a twelfth in length, direct, open, elliptical, with a narrow operculum. The aperture of the eyes is two-twelfths and a half in diameter; the eyelids with two sub-marginal rows of small rounded feathers. The ear is transversely elliptical, and nearly three-twelfths in its greatest diameter. The feet are of moderate length, very slender; the tarsus very much compressed, with only the lower scutella distinct; the first toe with eight, the second with ten, the third with fourteen, the fourth with fourteen scutella. The claws are of moderate length, arched, extremely compressed, that of the hind toe much larger, but curved in the same degree as the rest.



FIG. 156.

The plumage is soft and blended. The wings are of ordinary length, although their tips are three inches short of the extremity of the tail. The primaries are nine, the first and third equal, the second scarcely larger, the second, third, and fourth slightly cut out on the outer web towards the end; the outer narrowed and rounded, the inner very broad and obliquely rounded; of these eight secondaries the outer are rounded and slightly emarginate, the inner three tapering,

the sixth equalling the longest primary when the wing is closed. The tail is longer than the body, nearly straight, slender, rounded, of twelve narrow tapering feathers.

The bill is greyish-black, the lower mandible light grey in its basal half, the inside of the mouth dusky orange. The iris dark brown. The feet and claws are yellowish-brown, the latter of a deeper tint. The head and back are ash-grey, slightly tinged with greenish-yellow, shaded on the rump into greenish-yellow. The wings are chocolate brown, the elongated inner secondaries blackish-brown and glossed. The smaller coverts are broadly edged with grey, the larger more narrowly, and the inner three secondaries have a broad external margin of white; a band of white commences on the fifth primary, and passes inwards over the other quills near their base, but is concealed by the coverts. The central six tail feathers are brownish-black, edged with greenish-yellow; the outermost entirely white, but slightly tinged with yellow at the base; the next with the inner web white, the outer blackish-brown, excepting towards the tip, where it is white, and towards the base, where it is paler and edged with yellow; the next similar, but with a narrow longitudinal band of dusky close to the inner margin. There is a whitish line over the eye; the cheeks and sides of the neck are grey, the throat greyish-white; the fore part of the neck below, and all the under parts bright-yellow, tinged with red on the breast, purest on the lower tail-coverts; the sides tinged with grey. Tibial feathers pale brown. The concealed parts of the plumage are grey on the upper parts, blackish-grey on the lower.

Length to end of tail $8\frac{1}{4}$ inches; extent of wings $10\frac{1}{4}$; bill along the ridge $5\frac{1}{2}$ twelfths, along the edge of lower mandible $\frac{8}{12}$; wing from flexure $3\frac{1}{4}$; tail $4\frac{1}{4}$; tarsus $\frac{10}{12}$; first toe $\frac{4}{12}$, its claw $4\frac{1}{2}$ twelfths; second toe $4\frac{1}{2}$ twelfths, its claw $2\frac{3}{4}$ twelfths; third toe $6\frac{1}{2}$ twelfths, its claw $2\frac{3}{4}$ twelfths; fourth toe $4\frac{1}{2}$ twelfths, its claw $2\frac{1}{4}$ twelfths.

Female.—The female is somewhat smaller, but differs little in colour. The line over the eye is tinged with ochre yellow, as is the throat. The tint of the under parts is as bright as in the

male. The bill a little paler. Œsophagus two inches and a half long; stomach eight-twelfths; intestine six and a half inches.

Length to end of tail $7\frac{10}{12}$ inches; extent of wings 10; bill along the ridge $5\frac{1}{2}$ twelfths; tarsus $\frac{10}{12}$; middle toe and claw $\frac{9}{12}$.

Male in Spring.—A change takes place in March, by which the colour of the throat is altered, the greyish-white feathers of that part being substituted by others which are deep black, but slightly margined with whitish. This black patch is separated on each side from the grey of the neck by a white band which runs down from the base of the bill. The other feathers remain unaltered until the general autumnal moult.

Length of an individual $7\frac{3}{4}$; extent of wings $10\frac{1}{2}$; bill along the ridge $\frac{6}{12}$, along the edge of lower mandible $\frac{8}{12}$; tarsus $9\frac{1}{2}$ twelfths; middle toe and claw $9\frac{1}{2}$ twelfths.

Female in Spring.—The female undergoes a similar change, the throat becoming dark grey, mottled with yellowish-grey.

Length $7\frac{1}{2}$; extent of wings $9\frac{3}{4}$.

Changes in the Plumage.—After the autumnal moult, the grey of the upper parts is tinged with green, the margins of the feathers being of that colour; but some months after this tint has nearly disappeared, and by the month of July the upper parts are pure grey. The quills, which are at first edged with pale brown, also lose their margins, as do the smaller coverts, when the wing becomes of a uniform dark tint, although the whitish outer edgings of the inner secondaries are never entirely obliterated. The yellow of the lower parts, which is at first deeply tinged with red on the breast, becomes purer and brighter, but towards the end of summer paler. The tail-feathers are then much worn at the point, so that birds measured at that period are several twelfths shorter than in winter.

Habits.—Like the old man and the ass, I would fain please all the world; but the little experience which I have had, and the moderate portion of good sense which I possess, suffice to warn me of the impracticability of such a scheme. I have

gone out to describe the actions of the Grey Wagtail. There it is. What shall I say respecting it? "A regular winter visitant in the southern parts of the kingdom, but in the northern a summer visitant," frequents the sides of rivers, runs with celerity, nestles on the ground or in holes, lays five eggs, and rears two broods in the year? No,—thou beautiful little thing, thou deservest more regard than those men are willing to bestow upon thee. How prettily and pleasantly thou runnest along the sandy margin of the brook! The pattering of thy tiny feet can be heard only by fairy ears, so light is thy slender frame, which vibrates as if thy joints were too delicate, and thy muscles too sensitive for thee to fix them for a moment in rest. The gentle breeze that scarce bends the young grass, curves the long feathers of thy tail, and the sudden blast sweeps thee away quivering and emitting thy shrill notes; but thou hast alighted again, and runnest along, searching for thy favourite food, the small insects that gambol in the warm sunshine, and the wormlets that wriggle in the moist earth. Thy partner is now by thy side; thou hast no care, no sorrow; thy vesture is such as no art could weave, thy knowledge such as no philosophy could supply, thy simple spirit is pleased with simple pleasures, and thou carest not what of evil or of good may be thy lot. Happy bird! thou wilt fly with thy beloved, cleaving the air like an arrow, to some retired spot in the valley, thou wilt search out a place for thy nest where the willows fringe the clear brook, thou wilt gather many bits of straw, many hairs and feathers, thou wilt see thy mate seated on her dear eggs, wilt supply her with food day after day, wilt take her place for a while, and talk to her in thy simple style until thy young ones burst the shell. Then what bustle from morn till night to provide those six open throats with suitably delicate and nutritious food! and often wilt thou and thy partner pinch yourselves to afford them that abundant supply necessary for their growth. Soon will ye lead them to the margins of the eddying pool, and there, with your family around you, ye will sport in the sunshine, as ye do now, pursuing your avocations in peace and security. Soon again ye will form another nest, and rear another brood; and

then, your labours over for the season, ye will enjoy life for some weeks, visiting the lakes and pools, and feasting on the bounties of nature. When the frosts of winter have closed the waters, your season of distress will come, as come it must to all on earth; but then, dear little things, ye may fly if ye will to some lovelier land. And now, thou pretty Wagtail, what more can I say to thee? Why thou shouldst so interest me I know not, if it be not that thou art very gentle and very harmless. Thou art but a simple thing it is true, and the philosopher might spurn thee, but in thy small frame is more than a Newton or an Arago can comprehend; and pleasant it is to me to gaze upon thee, thou marvellous epitome of mind and matter harmoniously organized. But I must now address myself to a very different personage.

The Grey Wagtail frequents the margins of streams, pools, and lakes, at all seasons, and is generally distributed in the lower and more cultivated parts; but it is of very rare occurrence to the north of Inverness, and is not met with in the Outer Hebrides. From the middle division of Scotland, it shifts southward in the end of autumn, and even from the southern division the greater part migrate, although it is not uncommon to meet with individuals about Edinburgh through the winter and spring. When there is snow on the ground, they search the ditches and roads, and appear along with the Pied Wagtail at the doors of cottages and farm-houses.

Its flight is rapid and performed in large curves. When alighting, it spreads out its tail, displaying the lateral white feathers, which then become very conspicuous, and when standing it vibrates its body continually, so that the tail, which it now and then spreads by a sudden jerk is always in motion. It is very lively and active, walks in the prettiest manner imaginable, moving its head backward and forward at each step, runs with great speed, and although not very shy, is not insensible to danger from the proximity of man. Its food consists of insects of various kinds, which it usually picks from the ground, although it often performs a short aerial excursion in pursuit of them.

It is now the beginning of May. Our little favourites we

have not seen for many months; but here are two of them, upon the stones in Braid Burn. There they flutter about, alight, run, and shoot into the air; they are evidently a pair, and the male is easily distinguished from the female by the deep black patch on his throat. They have no doubt chosen this quiet spot, flanked with steep banks covered with trees, in which to rear their young. While the Pied Wagtails are now found in the neighbourhood of quarries, on stony slopes, in pastures, or in meadows, this species is rarely to be seen elsewhere than on streams, although instances of its nestling at a considerable distance from them sometimes occur. They are now shy, observant, and somewhat clamorous; but although they are constantly flying from place to place, they imagine themselves safe at no great distance.

The nest is placed on the ground, among grass or stones, and is composed of stems and blades of dry grass, mixed with moss and wool, and lined with wool, hair, and feathers. The eggs, from five to eight, are generally nine-twelfths long, seven-twelfths in breadth, with a greyish-white ground, spotted all over with faint greyish-brown. Sometimes the nest is found in a hole of a bank, or between large stones.

"In our neighbourhood," Mr Weir writes, "the Grey Wagtails generally build their nests in a rocky situation on the water side. To this however I know one exception. For several years past, a pair have built at Balbardie House. In the year 1835 they erected their abode in a small wooden spout above the feather-house door. Last year, one of the panes of glass above the said door having been broken, they changed their old situation, being determined to try an inside residence. They accordingly flew in by the window, and built their nest on a shelf, where they brought forth five young. They made a second nest on the window sole of the dairy, a few yards from the former one. And, what is remarkable, their nests were about two hundred yards distant from Balbardie Lough, or the nearest place where there is water."

In autumn, when the young are full-grown, and accompany their parents, it is amusing to watch these Wagtails as they seek their food along the margins of some pebbly stream. On

the 28th of September, 1838, I went out for the purpose of refreshing my memory, and betook myself to Colinton, three and a half miles from Edinburgh. The Water of Leith there enters a narrow wooded valley, extending to Slateford, and upwards of a mile in length. Just below the village is a mill-dam, where, among the large stones are seen several Wagtails flitting about, ever in motion, chasing the insects on foot, and now and then flying a short way after them. One has perched on the dam dike, my companion shoots it, and we find that it is a most beautiful male, having the new plumage just completed, and the black patch of summer replaced on its throat by a fine yellow tint. Alarmed by the report, the rest fly down the stream. Another shot is fired; the wounded bird flutters up the bank and falls among the grass, while one of those near it alights on a tree. Again we have come up to them, as they are busily feeding on the edges of the stream. Singling out an individual, I see it fly to a stone in the water, run a few steps upon it and seize an insect, launch into the air after another, betake itself to a flat ledge of slate-clay, run, turn, double, and stand, vibrating its body, and emitting a few shrill notes. On being disturbed by us, some fly down the valley, others perch on the trees, and two or three, making a circuit, return toward the mill. At various other points we again meet with them, and take note of their graceful action, their vivacity, their beautifully buoyant and undulated flight; but, as nothing more of their history can be traced at present, we leave them to enjoy themselves. Not a single Summer Warbler is to be seen, the Sandpiper has long ago retired, a very few Swallows are flying high over the trees, the valley being sheltered from the cold east wind, but none are to be found in the villages, and they have entirely disappeared from Edinburgh.

After the breeding season, great numbers are seen at the mouths of rivers, along with the Pied Wagtails, especially in marshy places to which the tide has access. About the middle of spring they disperse in pairs, and are met with along the streams and brooks, in the vicinity of which they generally nestle. The first brood is abroad by the end of May, the second in July.

This beautiful bird has no song, at least I have never heard it emit more than a few shrill and rather feeble notes. In its stomach I have always found insects exclusively, for the most part coleopterous, without any grains of sand or gravel. According to Montagu and other writers, it is seen in the south of England only in the winter season. In the north, and in most parts of Scotland it is not uncommon in summer, although there are few places in which it can be said to be plentiful. Mr Hepburn informs me that it is the only Wagtail that remains all winter, in his neighbourhood, in the interior of East Lothian, the Pied Wagtail departing in the middle of October, and not returning until near the end of February.

Young.—The young when fully fledged have the bill dusky, the feet yellowish-brown, the claws light brown. The upper parts are grey, tinged with green, the rump greenish-yellow; the wings and tail as in the adult, but the former with a transverse bar formed by the greyish tips of the secondary coverts. There is an ochraceous streak over the eye; the throat is brownish-white; a faintly marked crescent of dull grey feathers is seen on the fore-neck, of which the lower part and the anterior portion of the breast, are dull greyish-red; the sides grey; the rest of the lower parts greyish-white, tinged with yellow behind, the lower tail-coverts pale yellow.

Progress toward Maturity.—At the first autumnal moult, the bird assumes its complete colouring.



Fig. 157.

Family VI. SAXICOLINÆ. Saxicolinæ.

STONECHATS AND ALLIED SPECIES.

From among the very numerous species of birds belonging to the order Cantatores may be selected those which in form and habits bear a more or less decided resemblance to the Stonechat and Wheatear, and which may be formed into a group so blended on all sides with others, that the species on its limits may with equal propriety be referred to them. If any general and characteristic idea can be given of this group, it may perhaps be expressed as follows :—

The bill is rather short, straight, slender, tapering, depressed at the base, compressed beyond the nasal groove; the upper mandible with its dorsal outline declinate and straight at the base, convex toward the tip, which is slightly decurved and obsoletely notched; the gape-line straight. Both mandibles are concave, with a medial prominent line. The tongue is of moderate length, slender, papillate at the base, two of the papillæ being much larger, horny towards the end, with the edges lacerate and the tip slit. The œsophagus is of nearly uniform width, the proventriculus oblong with simple oblong glandules; the stomach of moderate size, roundish or elliptical, compressed, its lateral muscles rather thick, the tendons rather large, the cuticular lining tough, thin, and longitudinally rugous; the intestine of moderate length and width; the cœca very small and oblong; the rectum dilated into an elliptical cloaca, Pl. XIII, Fig. 6. There is thus no essential difference between the digestive organs and those of the other families, especially the Sylviinæ, Parinæ, and Turdinæ, the Alaudinæ alone differing in having the stomach more muscular.

The general form is slender; the head rather large, broadly ovate, and anteriorly convex. The eyes of moderate size; the nostrils oblong, in the lower and fore part of the nasal depres-

sion, which is feathered at the base. The legs are of moderate length, that is, varying from rather long to rather short; the tarsus slender, compressed, anteriorly covered with a long plate, in which the divisions of the scutella are sometimes, however, distinctly marked. The toes are moderate, compressed, scutellate, the lateral equal, the first strong; the claws rather large, arched, compressed.

The plumage is soft and blended, the feathers ovato-oblong and of loose texture. The basirostral bristles small. The wings of moderate length, broad; the quills eighteen, the first very small, the next three longest, the last three secondaries gradually shorter. The tail, of twelve feathers, is of moderate length.

The skeleton is similar to that of the Turdinæ and Sylvianæ. The digestive organs are especially adapted for insects and worms, but many of the species feed also on small soft fruits, and occasionally seeds.

The Saxicolinæ reside chiefly in stony places and open pastures, especially those covered with small shrubs, but some of them frequent woods. On the ground they advance by hopping. Their ordinary flight is moderately rapid and somewhat undulated. They search for food on the ground, on walls, or among thickets, and often pursue insects on wing. Their nests are large and lined with soft materials, and the prevailing colour of their eggs is blue. Most of them are migratory, and those which are permanently resident, shift their quarters, frequenting the neighbourhood of houses in winter.

Intimately allied to the Turdinæ by Erithacus and Gryllivora, to Alaudinæ by Motacilla ~~and Accentor~~, and blending directly with the Sylvianæ, the Saxicolinæ present no abrupt and decided characters, such as, being expressed in words, could enable the student always to refer a species to the family; and they who have attempted to define the groups of this order have completely failed, the indications which they give being either exaggerated or not distinctive. Thus Mr Swainson gives as a general character of his Sylvianæ, including Saxicolinæ, Philomelinæ, Sylvianæ, Parinæ, and Motacillinæ:—"Size universally small. Bill very slender, distinctly notched. Feet formed for walking, perching, or climbing. Tarsus slender, lengthened." The small size is not peculiar or distinctive, and is, moreover, a useless cha-

racter unless there were equally natural groups of a large or moderate size, and that uniformly. The bill is slender, but in many cases it is not distinctly notched, for example in the Wheatear, and especially in his own sub-family "Parianæ," of which the character as expressed by himself, "Bill either entire or very slightly notched," cannot be reconciled with the general character of "bill distinctly notched." To say that the feet are "formed for walking, perching, or climbing," is simply to state what is not peculiar to the family nor in any way distinctive of it. Nor is the tarsus always lengthened, for in the Parinæ it is very short. The characters which he gives to his Saxicolinæ, including "Grillivora," Thamnobia, Saxicola, Erythaca, and Petroica, are equally uncharacteristic, and contradicted by those which he assigns to the different genera. His Philomelinæ we are informed are "larger and more robust than the typical warblers," which is a character equally applicable to his Saxicolinæ; their "feet formed more for perching," which is no character at all. "Sylvianæ:—size very small, structure weak. Bill very slender, straight, and with the under mandible much thinner than the upper." These attempts at legislation are poor indeed, and cannot fail to excite some surprise in those who may have been induced to purchase the "Natural History and Classification of Birds."

SYNOPSIS OF THE BRITISH GENERA AND SPECIES.

from p. 70. GENUS III ACCENTOR. ~~CHANTER.~~ Accentor.

Bill short, straight, slender, a little broader than high at the base, compressed toward the end, the tip slightly declinate, the notches very slight; tarsi of ordinary length, rather slender, with seven anterior scutella; claws rather long, arcuate; wings rather short, much rounded, the fourth and fifth quills longest; tail rather long, slightly arcuate, rounded.

2 ~~1~~. *Accentor modularis.* *Hedge ~~Chanter~~.* Accentor. Upper parts reddish-brown and grey, with dusky streaks; lower dull ash-grey, the sides streaked with brown. Accentor.

1 ~~2~~. *Accentor alpinus.* *Alpine ~~Chanter~~.* Upper parts light

brown, and grey, with large dusky spots; fore part of neck greyish-white, spotted with black.

GENUS ERITHACUS. REDBREAST.

Bill short, straight, slender, broader than high at the base, compressed toward the end, the tip declinate, the notches small but distinct; tarsi rather long, slender, with a long undivided plate and three inferior scutella; claws of ordinary length, arcuate, acute; wings short, broad, concave, much rounded, the fourth quill longest; tail of moderate length, slightly decurved, nearly even.

Erithacus Rubecula. Robin Redbreast. Upper parts olive-green; forehead, cheeks, fore-neck and part of the breast bright red.

GENUS FRUTICICOLA. BUSHCHAT.

Bill short, straight, slender, depressed at the base, compressed toward the end, the tip deflected, the notches small; tarsi of moderate length, slender, with a long plate and four anterior scutella; toes rather short, slender; claws long, moderately arched, extremely acute; wings short, broad, curved; first primary a fourth of the length of the second, the third and fourth about equal, the latter longest; tail short, nearly straight, even.

1. *Fruticicola Rubetra. Whin Bushchat.* Male with a yellowish-white band over the eye, the upper parts light yellowish-red, with distinct oblong dusky spots; a patch on the wing, a band on each side of the neck, and the basal part of the tail, white. Female with the dark spots larger, the white markings less conspicuous.

2. *Fruticicola Rubicola. Black-headed Bushchat.* Male with the head and throat black, the upper parts brownish-black, the feathers edged with brownish-red; a spot on the wing, the sides of the neck, and the basal part of the upper tail-coverts, white. Female with the head and upper parts streaked with brownish-black and yellowish-grey, a white spot on the wings, the upper tail-coverts yellowish-red.

III. Vitiflora. Wheatear.

GENUS ~~IV. SAXICOLA. STONECHAT~~.

Bill of moderate length, straight, slender, depressed at the base, compressed toward the end, the tip declinate, with a slight sinus; tarsi rather long, slender, with a long plate and four inferior scutella; toes rather short, slender; claws rather long, moderately arched, acute; wings long, broad, the first primary a fourth of the length of the second, the second, third, and fourth longest, and nearly equal; tail of moderate length, nearly even.

Common Wheatear.

Vitiflora 1. ~~*Saxicola* Œnanthe. *White-rumped Stonechat.*~~ Male ash-grey above, with a black band on the sides of the head, the rump and upper tail-coverts white. Female with the upper parts brownish-grey, a brown band on the cheek, the rump as in the male.

GENUS IV. RUTICILLA. REDSTART.

Bill rather short, slender, a little depressed at the base, compressed towards the end, the tip slightly declinate, with a slight sinus; tarsi moderately long, very slender, anteriorly with a long plate and three inferior scutella; toes rather long, very slender; claws rather long, moderately arched, very slender, acute.

1. *Ruticilla Cyanecula. Blue-throated Redstart.* Male with the upper parts wood-brown, the fore-neck and breast marked with ultramarine blue, white and light red. Female similar, the throat blue, with a curved blackish-line.

2. *Ruticilla Phœnicurus. White-fronted Redstart.* Male with the middle of the forehead white, its anterior part, the cheeks, and throat, black, hind-head and back ash-grey. Female with the upper parts reddish-grey, the throat reddish-white. In both sexes the breast, rump, and tail light red.

3. *Ruticilla Tithys. Black-breasted Redstart.* Male with the upper parts ash-grey; the throat and part of the breast black. Female with the upper and lower parts grey, the throat whitish. In both sexes the rump and tail light red.

 After Petrocincla.

Genus III. ACCENTOR. ~~CHANTER~~. Bechst. Accentor.

Bill short, straight, slender, a little broader than high at the base, compressed towards the end: upper mandible with its dorsal outline declinate and nearly straight, the ridge narrow at the base, then convex and somewhat flattened, and towards the end convex, the sides convex, the edges sharp and direct, the tip slightly declinate, narrow and rather obtuse, the notch very slight; lower mandible with the angle rather long, narrow, and rounded, the dorsal outline ascending and almost straight, the sides convex, the edges decidedly involute, the tip narrow and rather blunt, the gape-line nearly straight, the edge of the upper mandible being slightly arched towards the end.

The mouth narrow; both mandibles deeply concave within, the upper with three prominent lines, the lower with two; the palate slightly concave; the posterior aperture of the nares oblongo-linear, edged behind with small papillæ. Tongue short, sagittate, narrow, terminated by two acute points. The œsophagus of moderate width, nearly uniform in diameter; the proventriculus oblong, with short oblong glandules. The stomach rather large, roundish-elliptical, compressed, its lateral muscles thick, the lower rather distinct, the tendons large, the cuticular lining tough and longitudinally rugous. The intestine of moderate length and width; the cœca very small, oblong; the rectum dilated towards the end.

Nostrils longish, linear, straight, in the lower and fore part of the nasal depression, which is large, rather acute anteriorly, and filled up by a membrane, which is bare anteriorly and thickened over the nostril. Eyes of moderate size; the eyelids feathered towards the margin, their edges bare and crenate. External aperture of the ear large, and roundish.

The general form is moderately full; the body ovate, of

nearly equal diameter vertically and laterally; the neck short; the head rather small, ovate, anteriorly narrow, the legs of ordinary length, rather slender; tarsus compressed, covered anteriorly with seven scutella, posteriorly with two long plates united at a very acute angle. Toes of moderate size, much compressed; the first large, the two lateral about equal, the third much longer, and united to the fourth as far as the second joint of the latter. Claws rather long, arcuate, greatly compressed, laterally grooved.

Plumage soft, indistinct, slightly glossed; the feathers oblong, with a plumule consisting of a few long barbs. There are no distinct bristle-feathers along the base of the upper mandible; but the feathers on the fore part of the face are terminated by bristly points. Wings rather short, broad, much rounded; of eighteen quills, the first very small, being about a fourth of the length of the longest, the second considerably shorter than the third, the fourth and fifth longest; the third, fourth, fifth, and sixth slightly cut out towards the end. Tail rather long, slightly arcuate, rounded, of twelve rather narrow, rounded feathers.

The genus Accentor is intimately allied to Sylvia, differing chiefly in the involution of the edges of the lower mandible, and the greater muscularity of the stomach, in consequence of which the species become partly granivorous. They move on the ground with a kind of gait intermediate between leaping and walking, and search for insects, worms, pupæ, and seeds near the shelter of bushes, to which they retreat on being disturbed. Our common species, Motacilla modularis of Linnæus, has been with propriety referred to the genus; but, although it has received that name, it is not so remarkable for melody as many other species of the Linnæan Motacilla. However, it is not altogether inaptly named, and Accentor is just as applicable to the genus as Sylvia, Saxicola, and Fruticicola, are to their respective groups.

Besides the common and generally distributed Accentor modularis, one or two individuals of another species have occurred in England.

Linn.

2 ∓. ACCENTOR MODULARIS. THE HEDGE ~~CHANTER~~ Accentor.

HEDGE SPARROW. HEDGE WARBLER. DUNNOCK. DICK-DUNNOCK. SHUFFLE-WING.



FIG. 158.

Motacilla modularis. Linn. Syst. Nat. I. 329.
Sylvia modularis. Lath. Ind. Orn. I. 511.
Hedge Warbler. Mont. Orn. Dict.
Accenteur mouchet. Accentor modularis. Temm. Man. d'Orn. I. 249.
Hedge Accentor. Accentor modularis. Selb. Illustr. I. 248.
Accentor modularis. Hedge Accentor. Jen. Brit. Vert. An. 103.

Upper part of the head and neck grey, streaked with brown; the back reddish-brown, with dark brown spots; the fore-neck and breast dull ash-grey, the sides streaked with brown.

MALE.—This familiar, gentle, and modest little bird, the very emblem of innocence, is perhaps the most despised of all our native species. Had it swaggered along in a red jacket, or screamed from the top of every eminence, or throttled all the smaller birds that came in its way, it would no doubt have attracted the regard of many, who scarcely deign to look upon it. The only person whom I have ever heard to praise it, was one of whose esteem it might be proud, if any praise could elate so simple a creature. Indeed, I was not a little surprised to hear him call it "a beautiful little bird;" but by that epithet he no doubt meant to designate its moral more than its

physical character. This admirer of the despised Hedge Sparrow was the celebrated American Ornithologist.

The form and proportions of the Hedge Chanter have been detailed in the generic character, to which it is unnecessary to add more than a few particulars. The tongue is five-twelfths of an inch long; the œsophagus two inches and a quarter, with an average diameter of two and a half twelfths; the stomach ten-twelfths long; the intestine seven inches, its duodenal portion two-twelfths across; the cœca oblong, and two-twelfths in length, their distance from the extremity ten-twelfths.

The nostrils are linear, and nearly a twelfth and a half long; the aperture of the eyes a twelfth and a half; that of the ears three-twelfths. The tarsi are rather stout; the hind toe strong, with eight scutella, the second with ten, the third with thirteen, the fourth with twelve. The claws are rather long, moderately arched, extremely compressed, and rather blunt, the first much stronger than the third.

The plumage is blended, the feathers broadly oblong and rounded. The wings are rather short, broad, and rounded. The fourth quill is longest, but scarcely exceeds the fifth, which is very little longer than the sixth; the third is a little shorter than the sixth, the second considerably shorter, and the first about a third of the length of the second. The quills are all rounded. The wings when closed reach to about a third of the length of the tail-feathers. The tail is slightly curved downwards, rounded, the lateral feathers bent a little outwards.

The upper mandible is brownish-black; its margin toward the base reddish flesh-colour, as is the lower mandible, which becomes dusky toward the tip; the iris dark brown; the feet brownish-yellow, the toes darker, the claws wood-brown. The head and neck are dull grey above, streaked with dark brown, the central part of each feather being of the latter colour. The back and scapulars are light reddish-brown, spotted with dark brown; the rump and upper tail-coverts pale greenish-brown. The wings and tail are dark greyish-brown, the quills and secondary coverts broadly edged with reddish-brown, the tail-feathers more narrowly. The auricular coverts are light brown,

with a central paler streak; the throat, neck, and fore part of the breast, are light purplish-grey; the sides and tibiæ pale brown, the central part of each feather darker; the abdomen greyish-white; the lower tail-coverts brown, with greyish edges; the lower wing-coverts light grey, tinged with brown. The concealed part of the plumage is bluish-grey.

Length to end of tail $6\frac{1}{4}$ inches; extent of wings $8\frac{3}{4}$; bill along the ridge $\frac{5}{12}$, along the edge of lower mandible $\frac{7}{12}$; wing from flexure $2\frac{10}{12}$; tail $2\frac{3}{4}$; tarsus $10\frac{1}{2}$ twelfths; first toe $4\frac{1}{2}$ twelfths, its claw $4\frac{1}{4}$ twelfths; second toe $4\frac{1}{2}$ twelfths, its claw $1\frac{3}{4}$ twelfths; third toe $7\frac{1}{2}$ twelfths, its claw $\frac{5}{12}$; fourth toe $4\frac{1}{2}$ twelfths, its claw $1\frac{3}{4}$ twelfths.

Female.—The female resembles the male so closely that the sexes can scarcely be distinguished by any external characters. The grey of the neck and breast is duller and tinged with brown, and the rump is more olivaceous.

Length to end of tail 6 inches; extent of wings $8\frac{1}{2}$; bill along the ridge $\frac{5}{12}$; wing from flexure $2\frac{7\frac{1}{2}}{12}$; tail $2\frac{9}{12}$; tarsus $\frac{10\frac{1}{4}}{12}$; hind toe $\frac{4\frac{1}{2}}{12}$, its claw $\frac{4}{12}$; middle toe $\frac{7\frac{1}{2}}{12}$, its claw $\frac{2\frac{1}{4}}{12}$.

Variations.—Accidental variations are extremely rare, but albinoes are sometimes met with. As the summer advances the colours become fainter, and the reddish-brown edges of the feathers narrower; the grey of the lower parts assumes a paler tint; but in general the difference between the winter and summer plumage is not remarkable.

Habits.—The history of the "Hedge Accentor" has been penned by many sages, and cut into almost all possible sizes, from four lines to as many paragraphs, and half as many pages; but we need not refer to books, for nothing is more easy than to take our sketch from nature. Come here, station yourself at the window, and observe the little brownish-grey birds that are moving about under the shade of that Laurocerasus. What can they be looking for there, in the middle of winter, when surely very few insects are to be found? Yet they shuffle along, with short steps, with a half-hopping and half-walking move-

ment, in a sort of crouching posture, looking intently on the ground, and every now and then pick up some small article, apparently too minute for us to perceive it were we quite close to it. Quietly, peaceably, and industriously they search among the tiny protuberances of the soil, gently raising and shaking their wings as they proceed. A person passes within a few yards of them, and yet they merely move a little way off, or quietly hop into the bush, where they frisk about among the branches. A pert Robin drops in among them, and they disperse, not liking so troublesome a companion, but they shew no fear of the Sparrows that have perched beside them, nor of the Thrush that stands on one of the branches. They sometimes pick up the small crumbs that are scattered near the door; but familiar and gentle as they are, they never enter the house, in the most severe weather, or under any enticement.

At all seasons these birds are seen in the gardens, and by the hedges, near houses; but during winter and spring they are much more numerous there, for those which in summer preferred remote places, then approach the habitations of man, although some still keep aloof. Hawthorn hedges are their favourite haunts, and on the ground along their bases they search for small seeds and insects, frequently making short pedestrian excursions into the fields on the one hand, or the footpath on the other. They flit about among the bushes with great liveliness, often running along the ground, and seldom perching on the upper branches. Owing to the dulness of their colouring, and the celerity with which they take shelter, they are not very readily perceived; but they can scarcely be called shy under any circumstances, and they often allow a person to approach within a few yards, or even feet, without shewing any apprehension. Even in winter they are not at all gregarious, for you seldom find more than two or three together, and it is very rare to see two flying in the same direction. Their flights are generally very short, and without undulation.

After the middle of spring, they are less frequently seen about houses; and at all seasons they are to be found in hedges and among bushes, seldom appearing in open ground or upon

trees. In fine weather they sing even in winter, nor is there any season of the year at which they are entirely mute; but from the middle of spring to the end of May especially, they are heard chanting their short, clear, pleasantly modulated, but not remarkably mellow song, generally when perched on a twig, but sometimes on the ground, or a wall. During the breeding season, the shake of their wings increases to a shuffle or kind of flutter, which they execute at short intervals; and this habit can hardly fail to be observed by the most incurious. Their ordinary cry is a slight cheep. They are not by any means quarrelsome, either among themselves, or with other small birds, and they seem to pair in the quietest possible manner.

In dry sunny weather in summer I have watched them basking on the road near a hedge. They would stand quite motionless, their legs much bent, their tail touching the ground, their wings spread a little, and their plumage all ruffled; and thus they remain a long time, seeming to enjoy the heat exceedingly, and suffering a person to approach very near them, before they fly off. At all seasons, but especially in winter, I have found their stomach to contain small seeds of various kinds, and frequently those of grasses; but they also feed on insects, pupæ, and larvæ. They use a great quantity of minute fragments of quartz and other hard minerals, which are seldom met with in the gizzards of the Sylviæ; so that with respect to feeding they resemble the Larks and Thrushes.

They nestle from the middle of March to the beginning of May, choosing very frequently a hedge, or a holly bush, but often contenting themselves with any low and moderately thick shrub; and as the nest is often completed before the leaves have made much progress, it is very liable to be destroyed by boys. It is bulky, from four and a half to five inches in diameter externally, its interior two inches and a quarter across, and nearly two inches deep. One before me is composed externally of a few hawthorn twigs, a great quantity of dry grass, and then a thick layer of moss. The lining is a quarter of an inch thick, and composed of hair of different kinds, with a considerable quantity of wool. Another is lined

with horse and cow hair, intermixed with a large quantity of the fur of the hare. The eggs, five or six in number, are of a fine greenish-blue colour, and have an oval rather pointed form, with a glossy surface; their longitudinal diameter varying from nine to ten twelfths, the transverse from six and a half to seven twelfths. There are generally two broods in the season.

Mr Neville Wood remarks, that "none of our smaller British Birds (the Field Thrush excepted) will build in a tree or bush which already contains a nest, whether that nest be deserted or not." I have seen however in a honeysuckle bower three nests of small birds, namely the Thrush, the Green Linnet, and the Hedge Chanter; and Sparrows sometimes build among Rooks' nests. That successful observer of the habits of birds has given a very detailed and most accurate account of those of the present species, which I therefore beg leave to recommend to notice; but from which I must refrain from making extracts, being anxious to relate as little as possible of the observations of others.

This bird is liable to a singular disease, consisting of tubercular and apparently carcinomatous excrescences upon the eyelids and about the base of the bill. I have several times shot individuals thus affected, but am unable to say whether the complaint ever proves fatal. Indeed it is very seldom that one falls in with small birds that have died, from whatever cause, and the reason probably is that they are soon picked up by rapacious quadrupeds and birds.

The Hedge Chanter is resident throughout the year, and generally distributed. Even in the bare islands of the north of Scotland, where there are no hedges, and scarcely a shrub four feet high, it is here and there met with in the vicinity of houses, where it builds in holes of walls, wood piles, and similar places. Being extremely hardy, it does not perform partial migrations, but remains in its native district, merely drawing nearer to the habitations of man in winter, and occasionally tending to enliven the dull season by its pleasant song. It seems from the following note of my friend Mr Weir, that it also claims a place among the nocturnal songsters. "In a holly hedge about thirty yards from my bedroom win-

dow, when I resided at Lauriston near Edinburgh, I have again and again heard the male, about eleven o'clock, in the darkest evenings of autumn and winter, and even when it was cold and frosty, go through his usual notes. At the regularity of the time when he poured them forth, I have often been astonished." Possibly this regularity may have depended upon that of my friend, who in retiring to bed may have sent a blaze of light through his window upon the hedge.

"The Hedge Chanter," says Mr Hepburn, "commences singing about the 20th of February. I have seen its nest and eggs by the beginning of April. Often two broods are raised in the season. I have often seen it sitting on the very top of a tree about twenty-five feet high, singing its sweet notes eight or nine times in succession; but during cold windy weather, it seldom repeats it so often. The female sits eleven days."

Young.—When fully fledged, the young have the bill and feet light brownish-red; the plumage of the upper parts confusedly mottled with dusky and light brownish-red, the tips of the feathers being of the latter colour; the quills dusky-brown, with broad light-red edges, the secondary coverts tipped with dull white; the tail-feathers brown with light-reddish margins; the lower parts light greyish-yellow, streaked with dusky; the ear-coverts dusky, with a light central streak.

Remarks.—Although the bill of this bird is not properly speaking conical, nor by any means stouter than that of many Saxicolinæ, it yet approaches in form to that of the Deglubitores, and as its food consists for the most part of seeds, it is certainly allied to that order, and in its own group may be considered as representing them. This observation applies with still more force to the next species, which some authors have considered as a Warbler, others as a Starling or a Finch.

Genus IV. Cinclus. p. 48.

Linn. Gmel. Accentor.

1. ACCENTOR ALPINUS. THE ALPINE ~~CHANTER~~.

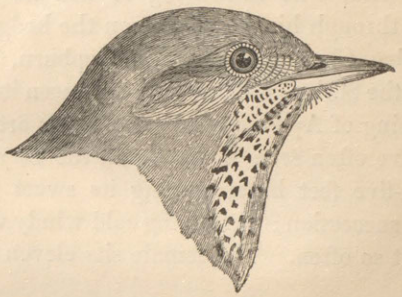


Fig. 159.

Motacilla alpina. Gmel. Syst. Nat. I. 957.
Sturnus collaris. Gmel. Syst. Nat. I. 806.
Sturnus collaris. Lath. Ind. Orn. I. 323.
Accenteur Pigot ou des Alpes. Accentor alpinus. Temm. Man. d'Orn. I. 248.
Alpine Accentor. Accentor alpinus. Selb. Illustr. I. 247.
Accentor alpinus. Alpine Accentor. Jen. Brit. Vert. An. 103.

Light brownish-grey; the back with large dusky spots; the wing-coverts dusky, with a terminal white spot; the throat white, with small triangular black spots; the sides brownish-red; the bill yellowish-white at the base.

Male.—In its general appearance this species bears an obvious resemblance to our common Hedge Chanter, although larger, differently coloured, and having the bill proportionally more tapering. The form is rather full, the neck short, the head ovate and of moderate size. The bill is rather stout, conical, compressed toward the end, and pointed; the upper mandible with the dorsal line sloping and very slightly deflected at the end, the edges a little involute beyond the

middle; the lower mandible with the angle narrow, the dorsal line straight, the sides inflected, the tip narrow. The feet are rather stout; the tarsus compressed, with eight anterior scutella; the toes of moderate length; the hind toe stout, with seven scutella, the second with nine, the third with thirteen, the fourth with ten. The plumage is blended; the wings are of ordinary length; the first quill very small, being only ten-twelfths of an inch long, the second, third, and fourth almost equal, but the third longest. The tail is of moderate length, and even.

The upper mandible is dusky, excepting its basal margins, which are yellowish-white, of which colour are three-fourths of the lower mandible, its tip only being brown. The feet are reddish-brown, the claws dusky. The head, hind part and sides of the neck, are dull light brownish-grey; the feathers of the back blackish-brown, with greyish-brown margins; the rump of the latter colour. The wing-coverts are dusky, margined with reddish-brown; the first row of small coverts, and the secondary coverts, tipped with white; the quills blackish-brown, the inner secondaries brownish-black, margined with reddish-brown. The tail is of the same colours, and tipped with white. The cheek-feathers and ear-coverts are brown, with a central whitish streak; on the throat is a large patch of greyish-white, marked with small triangular dusky spots; the sides and part of the breast are light brownish-red mixed with grey; the sides of the neck, its lower part anteriorly, and the fore part of the breast, are of the same brownish-grey as the hind-neck; the abdomen greyish-white; the lower tail-coverts greyish-brown, margined with brownish-white.

Length to end of tail 7 inches; bill along the ridge $\frac{7}{12}$; along the edge of lower mandible $\frac{9\frac{1}{2}}{12}$; wing from flexure $3\frac{5}{12}$; tail $2\frac{1}{2}$; tarsus $1\frac{1}{12}$; hind toe $\frac{4}{12}$, its claw $\frac{3\frac{1}{2}}{12}$; second toe $\frac{5\frac{1}{2}}{12}$, its claw $\frac{2\frac{1}{2}}{12}$; third toe $\frac{8}{12}$, its claw $\frac{5}{12}$; fourth toe $\frac{5\frac{3}{4}}{12}$, its claw $\frac{2\frac{1}{2}}{12}$.

Female.—The female is similar to the male.

Habits.—This species, which is said to be of frequent occurrence in the Alps, and in the mountainous parts of Germany,

France, and Italy, having been met with in a few instances in England, must be admitted into the list of British birds as a rare visitant. In November 1822, a female was killed in the garden of King's College, Cambridge, and is now in Dr Thackeray's collection. It had been accompanied by another individual, which was supposed to have become the prey of a cat, these birds having evinced an extraordinary degree of tameness. In January 1832, Mr James Pamplin, in a letter to Mr Loudon, published in the Magazine of Natural History, announced his having shot another in a garden on the borders of Epping Forest. Lastly, Dr Goodenough, Dean of Wells in Somersetshire, has intimated to Mr Yarrell the occurrence of a third, which was shot in his garden. On the continent it is said to frequent the higher regions in summer, whence it descends on the approach of winter. Its food consists of insects and seeds of various kinds, in which respect, as well as its inapprehension of danger from the proximity of man, it resembles our common species. It generally breeds in rocky places, forming its nest of moss, wool, and hair, and laying five light greenish-blue eggs.

Remarks.—The difference in the bills of Accentor and Erithacus is very slight, and their wings are very similar. In their habits these genera have no resemblance to the Tits; yet, in Mr Swainson's system, Accentor is a genus of the Parinæ, and has for a subgenus Seiurus, which certainly in form and habits has not more affinity to Parus than to Motacilla. The specimens from which the above description has been taken were obtained from Paris.

Georgius IV. Cur.

Accentor modularis. p. 251.

Genus I. ERITHACUS. REDBREAST.

Bill rather short, straight, slender, broader than high at the base, compressed towards the end; upper mandible with its dorsal outline slightly convexo-declinate, the ridge rather obtuse, the sides sloping at the base, convex towards the end, the edges sharp, direct and overlapping, the tip narrow and abruptly rounded, the notch small but distinct; lower mandible straight, the angle of moderate length, rather narrow and somewhat rounded, the dorsal outline ascending and slightly convex, the back convex, the sides of the crura nearly flat and sloping outwards, towards the end convex, the edges direct, the gape-line nearly straight.

The mouth narrow; both mandibles concave within, with a median prominent line; the palate nearly flat, with two longitudinal prominent lines; the posterior aperture of the nares oblongo-linear, edged behind with small papillæ. Tongue oblong, sagittate and papillate at the base, a little concave above, its free part beneath a little convex, with a median groove, its extremity rounded and lacerated. The aperture of the glottis has two rows and a large pad of papillæ behind. The œsophagus is of moderate width, nearly uniform in diameter; the proventriculus oblong, with short oblong glandules. The stomach of moderate size, roundish-elliptical, with strong lateral muscles, a rather distinct inferior muscle, large tendons, and rugous epithelium. The intestine is of moderate length and width, nearly uniform in diameter; the cœca very small, cylindrical; the rectum wider and dilated towards the end.

Nostrils longish, linear, straight, in the lower and fore part of the nasal depression, which is rather long, large, feathered in the greater part of its extent, anteriorly bare, with an oblong operculum. Eyes of moderate size; the eyelids feathered, their bare edges crenate. Aperture of the ear large, roundish.

The general form is rather compact; the body ovate, a little deeper than broad, the neck short, the head of moderate size, and oblong. The legs longish, slender; tarsus much compressed, anteriorly covered with a long undivided piece, and three inferior scutella, but with indications of seven scutella in all, posteriorly sharp-edged with two longitudinal plates. Toes of moderate size, much compressed; the first stout, the lateral about equal, the third much longer. Claws of ordinary length, arcuate, acute, extremely compressed, laterally grooved.

Plumage full, soft, blended, the feathers ovate, rounded, with a plumule composed of a few very long barbs. A row of pretty long bristle-feathers along the basal margin of the upper mandible. Feathers at the base of the bill and in the loral space bristle-tipped. Wing short, broad, concave, much rounded; quills eighteen; the first about half the length of the second, which is much shorter than the third, the fourth longest; the secondaries rounded, with a slight acumen. Tail of moderate length, slightly decurved, nearly even, the feathers rather narrow and obliquely acute.

The genus Erithacus, for which I adopt the Aristotelian name Ἐριθακος is very nearly allied to the genera Saxicola and Rubicola, as well as to Sialia and Turdus. In the form of their bill the Erithaci and Sialiæ greatly resemble the Thrushes, and their habits are in several respects similar, as will be seen more particularly on comparing my descriptions of the Robin and the Song Thrush. They frequent woods, thickets, and gardens, but seek their food chiefly on the ground, where they hop in the manner of the Thrushes, keeping their wings depressed and their tail horizontal. They feed on insects, larvæ, and worms; form a bulky nest, which is placed on the ground in some concealed spot, or in the holes of trees or walls; lay from five to seven eggs, and generally breed twice in the season. Their song is short, modulated, and melodious; they are extremely pugnacious, bold in the defence of their young, and less apprehensive of danger from man than most small birds. Only a single species occurs in this country, the familiar, universally known, and favourite Robin Redbreast.

1. ERITHACUS RUBECULA. THE ROBIN REDBREAST.

ROBIN. REDBREAST. ROBINET. RUDDOCK. BROINDERG.



Fig. 160.

Motacilla Rubecula. Linn. Syst. Nat. I. 337.
Sylvia Rubecula. Lath. Ind. Orn. II. 520.
Redbreast. Mont. Orn. Dict.
Bec-fin. Rouge-gorge. Tamm. Man. d'Orn. I. 215.
Redbreast. Erythaca Rubecula. Selb. Illustr. I. 188.
Sylvia Rubecula. Redbreast. Jen. Brit. Vert. An. 103.

Plumage of the upper parts olive-green; the forehead, cheeks, fore-neck and part of the breast, light yellowish-red.

Male.—It may by some be considered superfluous to give a minute description of a bird so well known as the Robin; but the common and familiar are at least as worthy of attentive observation as the scarce and shy, and it is not consistent with the plan of this work to pass over any object or circumstance however trivial. The general form of this species has been described in the generic character. Its bill is rather short, slender, with the tip slightly decurved and extending very little beyond that of the lower mandible. The tongue is four and a half twelfths long. The œsophagus two inches and two twelfths in length, its average diameter two twelfths; the stomach broadly elliptical, nine twelfths long, its lateral muscles strong;

the intestine eight inches long, and from two to one and a half twelfths in diameter; the cœca cylindrical, two and a half twelfths long, and one inch distant from the extremity.

The nostrils are linear, nearly two twelfths long; the aperture of the eyes two twelfths across; that of the ears three twelfths. The feet are slender, the tarsi slightly longer than the middle toe with its claw, slender, and much compressed, covered anteriorly with a long plate in which however are traces of four scutella, and three inferior distinct scutella; the hind toe stouter, with eight, the second with eight, the third with thirteen, the fourth with twelve scutella. The claws are of moderate length, moderately arched, extremely slender, laterally grooved, and acute.

The plumage is very soft and blended, the feathers ovate with very loose barbs, of which the barbules are long and downy. The feathers about the base of the bill, and especially those before the eyes are terminated by bristle-points; there is a row of small bristle-feathers along the basal margin of the upper mandible; and a few extremely slender filaments, having a slit or penicillate tip, protrude from among the feathers of the nape, as in many Thrushes. The wing is broad, concave, and much rounded; the first quill about half the length of the second, the fourth longest, the fifth scarcely shorter, the third almost as long as the fifth, the second much shorter; the third, fourth, fifth, and sixth slightly cut out on the outer web towards the end; the primaries rounded, the secondaries broadly rounded, with a slight acumen. The tail is of moderate length, nearly straight, narrow, a little emarginate, the feathers narrow and obliquely pointed.

The upper mandible is brownish-black, the lower flesh-coloured at the base, dusky at the end. The iris brown. The feet are yellowish-brown, the claws of the same colour. The upper parts of the plumage are olive-green; the quills and tail-feathers greyish-brown, the outer edges of the former olive-green, of the latter, especially at the base, reddish-brown; the outer secondary coverts have a small brownish-yellow spot at the tip. The feathers on the anterior part of the forehead, loral space, sides of the head, fore-neck, and anterior part of

the breast, are yellowish red. A line of ash-grey extends from the forehead over the upper eyelid and down the side of the neck, expanding and terminating on the side of the thorax. The middle pectoral and abdominal feathers are greyish-white, those of the sides dull yellowish; the lower wing-coverts grey, tinged with yellowish-red. The concealed part of all the feathers is greyish-black, the shafts whitish.

Length to end of tail $5\frac{8}{12}$ inches; extent of wings 9; wing from flexure $2\frac{10}{12}$; tail $2\frac{1}{2}$; bill along the ridge $\frac{5}{12}$, along the edge of lower mandible $\frac{7}{12}$; tarsus $1\frac{1}{12}$; first toe $\frac{4\frac{1}{2}}{12}$, its claw $\frac{3\frac{1}{2}}{12}$; second toe $\frac{5}{12}$, its claw $\frac{2}{12}$; third toe $\frac{7\frac{1}{2}}{12}$, its claw $\frac{3}{12}$; fourth toe $\frac{5\frac{1}{2}}{12}$, its claw $\frac{2}{12}$.

Female.—The female differs very little from the male. The red on the neck is somewhat paler, the longitudinal grey band less distinct, and the upper parts are tinged with grey.

Length to end of tail $5\frac{6}{12}$ inches; extent of wings 9.

Variations.—Individuals of a greyish or yellowish-white, and others with some of the feathers white, are rarely met with. Adult individuals in perfect plumage vary slightly in the tint of the upper parts, as well as in that of the fore-neck.

Changes.—As the plumage becomes old, the olive-green of the upper parts becomes tinged with grey, and the wings and tail assume a bleached appearance, while the red of the neck acquires a lighter or more yellowish tint.

Habits.—The lively, pert, pugnacious, and cheerful Robin, doubtless merits a more able biographer than he whose duty it is here to describe its mode of life; but, leaving the poetry of its history to those whose delight is in the marvellous and distorted, let us walk abroad to look on nature as she is. It is now the end of September; the corn is nearly all secured, most of the wild flowers have faded, the woods begin to assume a yellow tint, and the hot days are succeeded by chilly evenings, the still soft and humid air of which imparts a feeling of renovated vigour. In the gardens, along the hedges, and about the

farm-houses, you meet here and there with the ever welcome and familiar Redbreast, who since the end of April had disappeared, having betaken himself to the woods and thickets, where, no doubt, he has passed a busy and a happy season. Now, he revisits his winter haunts, where, in the vicinity of human habitations, he finds a more ample supply of worms, pupæ, and insects, than occurs in the fields and pastures.

The ordinary attitude of the Robin is very similar to that of the Song Thrush. There he stands under the hedge, as if listening, or surveying the neighbourhood, his body inclined, his wings drooping, his head a little raised, and his full and humid eye beaming with a mild lustre. Now he starts, hops forward a short way, picks up something which he has spied, resumes his former attitude, observes a worm partially protruded and wriggling among the grass, attacks it, and wrenches off a goodly piece, which he divides into morsels and swallows. And thus he goes on all day, taking matters quite coolly, seldom appearing in a hurry, but gleaning the small dainties which the bounteous hand of providence has spread around for his use. When disturbed, he flies into the hedge, or perches on the wall, where he stands a while, and then perhaps amuses himself with a sweet little song.

The flight of the Robin is usually rapid, direct, and without undulations, never performed at a great height, but generally by short starts from hedge to bush, or from wall to railing. At all seasons, when the weather is fine, it may occasionally be heard chanting its short, mellow, and enlivening song. It is quite solitary in winter, two individuals being seldom seen together, and it scarcely ever mingles with other species, even the Hedge Chanter, its nearest neighbour. Indeed, it has a sort of dislike to other small birds, which it sometimes attacks and generally puts to flight. Even the House Sparrow, stout as it is, cannot withstand its onset, but is glad to escape from so troublesome a little fellow.

But pert and forward as he is, in ordinary times he is not perfectly disposed to trust to man; for the Hedge ~~Chanter~~ Accentor and the Sparrow generally allow a much nearer approach. Yet, when his wants are urgent, during protracted hunger caused by

the continuance of snow or frosty weather, he ventures much nearer than any other species, stands in the window or door, picks up the crumbs that are scattered about, or have been purposely left, and, when an opportunity presents itself, sometimes even visits the interior of the house, where, if there be no cat, he is perfectly safe, as every body loves him, and the children, mindful of "the babes in the wood," cherish the friend of innocence.

The song of the Robin is rich, mellow, and modulated. Two birds, perched on a tree, bush, or wall, at a distance, often respond to each other, in the manner of the Song Thrush, especially in calm and clear evenings. Not unfrequently it sings even in dull or rainy weather, when no better music is heard than the chirping of Sparrows, or the cheep of the Hedge ~~Chanter~~ Accentor, which, although it is a very tolerable musician, is not so lavish of its song.

Although most of the Redbreasts retire from the vicinity of human habitations in summer, and betake themselves to the woods and distant parts of hedges, yet some go to no great distance, but take up their abode in a hedge or copse, or on a mossy bank, close to their winter haunts. It does not appear that they remain paired in winter; but at all events, they are seen in pairs by the end of February; and sometimes the young have been found in their nests so early as the end of March. In general however, the eggs are deposited about the beginning of April. On the 9th of May, 1831, I saw a young Robin, nearly fully fledged, in a hedge at St Bernard's Well, in Edinburgh, the season being rather backward, and authors have given a much earlier period for their appearance. On the 2d of June, 1837, after a remarkably severe winter and spring, my son brought me two scarcely fledged birds, which, with the rest, scrambled from the nest; and these were in all probability of the first brood.

The nest is placed under a hedge or bush, on the ground, among herbage, or on a mossy bank. I have never met with it in a tree, shrub, or hedge. It has been variously described by authors, some of whom have given a most marvellous account of it, stating that it is constructed of oak leaves, arched

over, and having a long porch built of the same materials before the door. Here is one found in Dalhousie woods, some miles southward of Edinburgh, on the 22d April 1837. It is bulky, rather loosely constructed, its external diameter five inches and three quarters, its internal diameter two inches and a half, its walls an inch and three-fourths in thickness. Its basis is composed of moss and decayed leaves of trees, with broad blades of grass; the middle layer of fine stalks and leaves of grass, mosses of several species, loosely interwoven, with a few skeleton leaves; the lining of hairs and wool of a white colour, and a quarter of an inch thick. The eggs in this nest were five, and their general number is five or six. They are of a regular oval form, averaging nine and a half twelfths in length, and seven and a fourth twelfths in their greatest breadth, of a delicate reddish-white, faintly freckled with light purplish-red, the markings thickest on the larger end, and sometimes forming a kind of belt there.

In summer the Robin, although not at all shy, is less frequently observed, as it prefers the woods, thickets, and hedges to the open fields. Although pugnacious enough on ordinary occasions, it is not nearly so bold as many other small birds when its nest is approached by man, but keeps hopping about at some distance, and uttering a feeble cheep, without making any manifest attempts to decoy him away; yet it will attack a cat, and is more than a match for any bird of its own size.

To these observations of my own, I add the following by my friend Mr Weir. "It is a mistaken notion that the Redbreasts during summer remove from the habitations of man, and build their nests in wild and secluded places. At a little distance from my stable a pair have built on the same bank for several successive years. Another pair built on the side of a ditch, a few feet from the door of my shrubbery, and brought to maturity six young ones, although people passed and repassed the nest many times during the day. Another pair have built for several years at the bottom of a hedge not far from my house, and now have young ones (10th June 1837) which are flying about, and are very tame. Many of those however which in summer had resided at a distance, approach the

abodes of man in winter, and when there is a fall of snow or a severe frost, there is scarcely a cottage or a house in the country, at the doors of which they fail to make their appearance. Sometimes they even tap at the windows with their bills, as if to solicit admission; and when it is given to them, they will hop up and down the floor, and pick up the crumbs. In every age their familiarity has engaged the attention, and secured to them the protection of mankind. In my parish they are held as sacred by the bird-searching youths as the vultures are in the neighbourhood of Grand Cairo, where no one is permitted to destroy them. For very few even of the most daring and hard-hearted amongst them will venture to destroy either them or their eggs. So deeply have their minds been impressed by the recital of the well-known and affecting history of the babes of the wood, who, after they had been left to perish with hunger, were covered with leaves by these little creatures.

"During the months of autumn and amidst the desolations of winter, when almost all the songsters of the woods are silent, we listen to their pleasing notes with delight. I have known several curious facts relative to their tameness, of which I shall relate only one at present. In the summer of 1835 a male robin in my garden became so tame that he picked worms from the hand of the gardener, and in the middle of the day, when the latter took his dinner, he constantly attended for the purpose of obtaining a portion of it. Upon the knee of my wife I have repeatedly seen him alight, and take bread out of her hand as familiarly as if he had been tamed from the nest. To me he likewise became very much attached. He continued so during the autumn. One cold morning in the beginning of winter, as I was standing at the door of my house, having heard my voice he immediately flew to me, and, seeming to claim my protection, followed me into the parlour, where he was quite at ease. I caught him and put him into my garret, in which, during the winter, he sang most delightfully. Being sorry to see him alone, I got for him a helpmate to cheer him in his confinement. About the middle of April I set them at liberty, and, to my surprise, a few days after I discovered a very neat nest which they had

built. The outside of it was composed of the stalks of dried horehound, which I had suspended from the roof as a medicine for the cold, and the inside was lined with a few feathers, and the down of the ragwort which I had there kept for my bullfinch. It shews to what shifts birds have recourse when deprived of the proper materials for the construction of their nests. About eight days after this, whilst I was sitting in the parlour, my old friend flew in, and immediately recognised me. After keeping him for two weeks I put him out, when he flew to the garden, where he remained during the summer, and with his partner reared a brood of six fine robins."

This species is generally distributed, being found in all parts of England and Scotland, and occasionally even in the bare islands of the Outer Hebrides and Shetland. On the continent it is stated to be very extensively dispersed and stationary even in the coldest parts. There seems to be no reason for supposing that any individuals leave this country in winter, or that any accessions to the indigenous stock are made by migrants from the north of Europe.

The Robin, no doubt, is exposed to many enemies, but I am not qualified to say any thing on the subject, not having met with an instance of its capture by weasel or fitchet, hawk or howlet. Whatever may be the quality of its flesh, its blood has a singularly bitter and nauseous taste, as I happened accidentally to ascertain by removing with my mouth some drops from one which I intended for description.

Young.—The young, which are at first sparingly covered with loose down of a greyish-brown colour, are when fledged as follows:—The upper mandible is light purplish-brown, its edges yellow, the sides and greater part of the lower mandible yellowish, the end brown. The feet are yellowish flesh-colour, the soles and heels yellow. The upper parts are variegated with dusky olive and dull orange, there being a spot of the latter on each feather; the wings and tail olivaceous, the secondary coverts largely tipped with dusky orange; the lower parts are brownish-yellow, deeper on the breast, minutely mottled with dark-brown, the tips and edges being of that colour.

Saxicola. Bechst. Chat.

Genus II. ~~FRUTICICOLA. BUSHCHAT~~.

Bill short, straight, slender, depressed at the base, compressed towards the end: upper mandible with its dorsal outline declinate and nearly straight, the ridge narrow at the base on account of the breadth of the nasal membrane, and continuing rather sharp to the tip, which is deflected, narrow, and rather acute, with a small notch, the sides sloping at the base, convex towards the end, the edges sharp and overlapping; lower mandible straight, the angle of moderate length, rather narrow, and somewhat rounded, the back broad and flattened at the base, narrow and convex towards the end, the sides of the crura nearly flat and sloping outwards, towards the end convex, the edges sharp and inflected, the tip narrowed to a blunt point; the gape-line straight.

The mouth rather wide; both mandibles concave within, with a median prominent line; the palate nearly flat, with two longitudinal prominent lines; the posterior aperture of the nares oblongo-linear, edged behind with small papillæ. Tongue short, sagittate, rather narrow, at the base emarginate and papillate, two of the papillæ much larger, concave above, horny towards the end, bristly on the edges, the tip slit. Aperture of the glottis with two rows and a large pad of papillæ behind. The œsophagus is of moderate width, nearly uniform in diameter; the proventriculus oblong, with short oblong glandules. The stomach of moderate size, roundish-elliptical, compressed, its lateral muscles rather thick, the lower not very distinct, the tendons rather large, the cuticular lining tough and longitudinally rugous. The intestine is of moderate length and of nearly uniform width; the cœca very small; the rectum dilated towards the end.

Nostrils small, elliptical, direct, pervious, in the fore part of the large and broad nasal membrane, which is anteriorly bare. Eyes of moderate size; the eyelids feathered towards the mar-

gin, their edges bare and crenate. External aperture of the ear large, and roundish.

The general form is rather compact; the body ovate and rather full, the neck short, the head rather large, ovate and convex above. The legs of moderate length, and slender; tarsus of moderate length, slender, much compressed, covered anteriorly with a long plate and four anterior scutella, posteriorly with two long plates meeting at an extremely acute angle. Toes rather short, slender, the second and fourth about equal, the first strongest and longer, the third much longer, and united to the fourth as far as the second joint of the latter. Claws long, moderately arched, extremely compressed, laterally grooved, tapering to an extremely acute point.

Plumage soft and blended, the feathers ovate, with very loose filaments, and slender plumule. Wings short, curved, broad, semi-ovate; quills eighteen; the first primary extremely small, being about a fourth of the length of the second, which is shorter than the third, the latter about equal to the fourth, the fifth scarcely shorter; the primaries rounded, the secondaries broad, and obliquely rounded. Tail short, nearly even, the feathers rather narrow, obliquely rounded. The feathers about the base of the bill are bristle-tipped, and the bristle-feathers are rather large.

This genus differs little from Saxicola, and one of its species, Fruticicola Rubetra, has the point of the wing nearly of the same form as Saxicola Œnanthe. The bill is shorter and broader, the tarsi shorter, the wings also shorter, and moreover curved, as is the case with the tail. The whole form is more abbreviated, with the plumage more tufty and of looser texture. While the Saxicolæ inhabit open pastures and betake themselves to stony and rocky places, making their nests in holes, the Fruticicolæ prefer bushy places, perch on the twigs, whence they sally forth in pursuit of insects like the Flycatchers, and place their nest on the ground under a shrub. Their nearest allies are the Saxicolæ, Sialiæ, Phœnicuri, and Muscicapæ.

Two species occur in Britain, one migratory, the other resident. They are found chiefly on heaths, commons, and wastes overgrown with juniper, furze, brambles, sloes, and other shrubs.

Sax

1 ~~FRUTIC~~ICOLA RUBETRA. THE WHIN ~~BUSH~~CHAT.

WHINCHAT. FURZECHAT.



FIG. 161.

Motacilla Rubetra. Linn. Syst. Nat. I. 332.
Sylvia Rubetra. Lath. Ind. Orn. II. 525.
Whinchat. Mont. Orn. Dict.
Traquet Tarier. Saxicola Rubetra. Temm. Man. d'Orn. I. 244.
Whin-Chat. Saxicola Rubetra. Selb. Illustr. I. 183.
Saxicola Rubetra. Whin-Chat. Jen. Brit. Vert. An. 120.

Male with the upper parts light yellowish-red, streaked with distinct oblong blackish-brown spots; a yellowish-white band over the eye; a patch on the wing, a longitudinal band on each side of the neck, and the basal part of the tail, white; the lower parts light red anteriorly, paler behind. Female with the dark spots larger, the white markings less conspicuous, that on the wing occupying only the tips of some of the coverts, the lower parts of a duller and paler tint. Young with the upper parts dusky, each feather marked with a central oblong yellowish-grey spot, the lower parts light greyish-brown, the feathers on the fore-neck margined with dusky.

MALE.—The Whinchat is intermediate in form and proportions between the ~~White-rumped Stonechat~~ Wheatear and the ~~Black-headed Bushchat~~ Stonechat. It is a small, compact, lively bird, which

renders itself conspicuous by its habit of perching on the top twigs of bushes, whence it sallies forth in pursuit of insects. Its bill is of moderate length, considerably dilated at the base, compressed towards the end, the edges of both mandibles sharp and inclined outwards. The tongue is five-twelfths of an inch long, narrow-sagittate, a little concave above, thin-edged, the margins lacerated towards the tip, which is slit. The œsophagus is an inch and eleven-twelfths long, its average diameter two-twelfths. The stomach is broadly elliptical, compressed, eight-twelfths long, its lateral muscles large. The intestine is seven inches long, and varies in width from two and a half twelfths to two-twelfths; the cœca oblong, one-twelfth long, and an inch distant from the extremity.

The nostrils are elliptical, pervious, with a small operculum, and only three quarters of a twelfth long. The aperture of the eyes is a twelfth and a half; that of the ears three-twelfths. The tarsi are of moderate length, slender, and much compressed, their anterior scutella indistinct, excepting the lower four; the toes small, much compressed; the first with eight, the second with ten, the third with thirteen, the fourth with twelve scutella; the claws long, slightly arched, extremely compressed, laterally grooved, tapering to an extremely acute point.

The plumage is very soft and blended; the feathers ovate, with loose filaments; the bristle-feathers at the base of the upper mandible rather strong. The wings are of moderate length, a little curved, with eighteen quills, which are all rounded; the first primary very small, being about a third of the length of the second, which is but slightly shorter than the third and fourth; the third, fourth and fifth are cut out on the outer edges towards the end. The wing thus, in the form of its tip, resembles that of the White-rumped Stonechat, but is proportionally shorter and less straight. The tail is short, nearly even, the lateral feathers a little shorter; all the feathers rounded.

The bill and feet are black. The iris dusky brown. The general colour of the upper parts is pale yellowish-red, streaked with oblong blackish-brown spots, the central part of each feather being of the latter colour. A white band extends over the eye, from near the middle of the forehead to the side of the oc-

ciput, being tinged with yellowish-red behind; below it is a broad band or patch of black, including the auricular coverts, which are streaked with brown. The quills are dusky brown, margined with light yellowish-red, the coverts darker. When the wing is expanded, three white spots appear upon it: a large patch including some of the small coverts and the basal portions of the nearer secondary quills; another on the edge of the wing formed by the basal part of the primary coverts; and a smaller formed by the basal part of the outer primary quills. But when the wing is closed, the first of these only is seen. The rump is yellowish-red, its dusky spots much smaller than those of the back; the tail dusky brown, its basal half white, but only a fourth of the two middle feathers of that colour, the shafts of all dusky. A white band passes from the throat down the side of the neck, under the black patch; the fore-neck and anterior part of the breast are light yellowish-red, and the rest of the lower parts are reddish-white tinged with grey, excepting the axillar feathers which are white, the lower wing-coverts, which are dusky, broadly margined with whitish, and the tibial feathers, which are also dusky in their basal portion.

Length to end of tail $5\frac{1}{4}$ inches; extent of wings $9\frac{1}{4}$; wing from flexure $2\frac{1}{12}$; tail $1\frac{10}{12}$; bill along the ridge $\frac{5}{12}$, along the edge of lower mandible $\frac{7\frac{1}{2}}{12}$; tarsus $\frac{10\frac{1}{2}}{12}$; first toe $\frac{4\frac{1}{2}}{12}$, its claw $\frac{4\frac{1}{2}}{12}$; second toe $\frac{4\frac{1}{2}}{12}$, its claw $\frac{2\frac{1}{2}}{12}$; third toe $\frac{7}{12}$, its claw $\frac{2\frac{1}{2}}{12}$; fourth toe $\frac{4\frac{1}{2}}{12}$, its claw $\frac{2}{12}$.

Female.—The female is scarcely inferior in size to the male, and is coloured in the same manner, but differs in the brightness of the tints. The dark spots on the back are broader, and of a much lighter brown. The ear-coverts are dull reddish-brown, the longitudinal white bands on the neck are narrower, the lower parts paler, and the white patch on the wings is confined to the tips of some of the small coverts. The tongue is five-twelfths of an inch long. Œsophagus an inch and three quarters long; stomach eight-twelfths; intestine six inches and a half; cœca one-twelfth.

Length to end of tail $5\frac{1}{4}$ inches; extent of wings $9\frac{2}{12}$; wing from flexure $2\frac{1}{12}$; tail $1\frac{10}{12}$; bill along the ridge $\frac{5}{12}$; tarsus $\frac{10\frac{1}{2}}{12}$; middle toe and claw $\frac{10}{12}$.

Variations.—The variations which this species exhibits are so very slight as scarcely to admit of being described.

Changes.—The plumage being coloured as above described in spring, when the species makes its first appearance with us, undergoes considerable change as the season advances. The upper parts become darker, as the edges of the feathers are abraded; the wings of a more uniform but lighter brown; the fore-neck and breast of a paler red, and the white markings of a purer tint. By the end of summer, the oblong blackish-brown spots on the upper parts are rendered more conspicuous, by the abrasion of the light-coloured edges of the feathers, and the red on the fore-neck has faded in a very remarkable degree, while the rest of the lower parts have become greyish-white. The female exhibits similar changes. Specimens shot in the beginning of July by Mr Weir are in this state.

Habits.—The Whin ~~Bushchat~~ Chat generally arrives about a month later than the ~~White-rumped Stonechat~~ Wheatear, and in the south of Scotland seldom makes its appearance before the end of April, while it is stated to arrive in the south of England about the middle of that month. It is generally distributed over the country, occurring here and there in pastures, chiefly in hilly and upland parts, though also in low and level tracts, that are overgrown with furze, juniper, sloe, brambles or briars. On the ground, where it is seldom seen however, it hops with great activity, flitting on wing by short starts from place to place. The station on which it is most frequently met with is the topmost twig of a bush, whence it issues now and then to pursue an insect on wing, or search for food on the ground. When stationed, it is continually jerking its body and tail, and at every movement it utters a short and rather sharp note resembling the syllable *chack* or *chat*, whence, with its usual place of resort, it has obtained the vernacular name of Whin-chat. Its food consists chiefly of small coleopterous insects. In the stomachs of those which I have opened, I have never found any other substance, nor any particles of quartz or other mineral. It is when perched on a twig, and often when flut-

tering in the air over it, that it performs its short, modulated, cheerful song, which resembles that of the ~~White-rumped Stonechat~~ Wheatear, but is inferior to it in mellowness and compass. In this respect the ~~Bushchat~~s resemble the White-throated Warbler; and, in fact, both in form and habits, a gradation may easily be traced through the different species of the extensive family of Cantatores. The Whin ~~Bushchat~~ Chat is generally shy and vigilant, so that it is not easily shot, unless in the vicinity of its nest, from which it endeavours in various ways to decoy an intruder. If wounded, it hides among the bushes, and is very difficult to be traced.

When one approaches their nest, they evince great anxiety; but at first keep at some distance, perch on the top twigs of the bushes, and at short intervals emit a mellow plaintive note followed by several short notes resembling the ticking of a clock, or that produced by striking two pebbles together, and at the same time jerk out their tail and flap their wings. When the plaintive note alone is uttered, they do not move the body or wings; but for every two ticks, there is a jerk of the tail, accompanied by a slight elevation of the wings. The notes may be represented by the syllables, *peep*, *tick*, *tick*, *tick*, *tick*. Sometimes a single tick only is emitted, frequently four or five, rarely six. If you go nearer the nest, they advance, redouble their cries, flit about from bush to bush, and sometimes hover in a fluttering manner at the height of a few feet.

This species breeds twice in the season, the first brood being abroad from the middle of June to the beginning of July, the second in August. The nest is concealed among shrubs and herbage, being placed on the ground, and is composed of stems and blades of grasses, with fibrous roots, and mosses, its interior formed of finer fibres and hair of various kinds. It is very large, its external diameter being six inches, the internal two and a half. The eggs, which are four or five in number, are of a uniform light greenish-blue, sometimes marked with brownish-red dots, but generally unspotted; their average length eight and a half twelfths, their greatest breadth six and a half twelfths.

Young.—The young when fledged have the bill and feet greyish-brown, the upper parts dusky, gradually passing into light yellowish-red behind, each feather with a terminal oblong narrow brownish-yellow spot; the wing and tail-feathers brownish-black, broadly edged with brownish-red; the tips of some of the smaller wing-coverts whitish, the lower parts light yellowish-brown, passing into brownish-white on the abdomen; the feathers on the fore-neck margined with dusky; the basal half of the tail-feathers, excepting the two middle, white.

Progress toward Maturity.—The young of the first brood moult before the species takes its departure, and are then similar to the old birds.

Remarks.—This species is easily distinguished from the next, by the two bands on each side of the head, the one white and the other dusky; as well as by the difference in the proportional length of the outer primaries, as represented by the accompanying figures.

Fig. 162.





Fig. 163.

Sax Stone Chat

2. ~~FRUTIC~~ICOLA RUBICOLA. THE ~~BLACK-HEADED BUSHCHAT.~~

STONECHAT. STONESMICH. STONECHATTER. BLACKY-TOP. SNAC.



Fig. 164.

Motacilla Rubicola. Linn. Syst. Nat. I.
Sylvia Rubicola. Lath. Ind. Orn. II. 523.
Stonechat. Mont. Orn. Dict.
Traquet pâtre. Saxicola rubicola. Temm. Man. d'Orn. I. 246.
Traquet rubicole. Saxicola rubicola. Temm. III. 168.
Stone-Chat. Saxicola Rubicola. Selb. Illustr. I. 185.
Saxicola Rubicola. Stone-Chat. Jen. Brit. Vert. An. 121.

Male with the head and throat black, the breast brownish-red, the sides of the neck, a spot on the wings, and the basal part of the upper tail-coverts, white, the upper parts brownish-black, the feathers edged with brownish-red. Female with the head and upper parts streaked with brownish-black and brownish-red, the throat yellowish-grey, the breast dull brownish-red, a white spot on the wings, and the upper tail-coverts yellowish-red. Young with the upper parts dusky, streaked with pale yellowish-red, the lower dull yellowish-brown, the fore-neck mottled with dusky, and some of the inner secondary coverts white.

Male.—This species closely resembles the Whinchat in form, but has a shorter and fuller appearance, chiefly produced how-

over by the greater looseness and tufty texture of its plumage. The bill is rather short, considerably dilated at the base, compressed towards the end, in short in all respects similar to that of the preceding species, but with the tip of the upper mandible more decurved. The tongue is five-twelfths of an inch long, narrow-sagittate, concave above, thin-edged, the tip slit and slightly lacerated. The œsophagus is an inch and ten twelfths long, its average diameter two twelfths. The stomach is seven and a half twelfths long, broadly elliptical, compressed, its lateral muscles large, the lower indistinct; the inner coat rugous and of a reddish-brown colour. The intestine is six and a half inches long, its diameter from two-twelfths and a quarter to two-twelfths; the cœca one-twelfth long, and an inch distant from the extremity.

The nostrils are elliptical, three-quarters of a twelfth long, and partially concealed by the feathers. The aperture of the eyes is a twelfth and a half, that of the ears two twelfths. The tarsi are of moderate length, slender, much compressed, their anterior scutella blended, the three lower only remaining distinct; the toes small, much compressed; the first with eight, the second with ten, the third with thirteen, the fourth with twelve scutella; the claws rather long, slightly arched, extremely compressed, laterally grooved, tapering to an extremely acute point.

The plumage is remarkably soft, blended, and tufty; the feathers ovate, with loose filaments; the bristle-feathers at the base of the upper mandible rather strong. The wings are rather short and considerably curved; the quills eighteen; the first very small, being less than half the length of the second, which is much shorter than the third; the fourth longest, but the third and fifth scarcely shorter; the secondary quills are broadly rounded. The tail is short, nearly even, all the feathers rounded.

The bill and feet are black, the mouth and tongue flesh-coloured. The iris brown. The head, cheeks, and throat are black, but all the feathers edged with brownish-red; the upper parts are similar, but the red margins enlarge on the rump and tail-coverts, which are white at the base. The quills and

coverts are also brownish-black, edged with red; those of the tail similar, but the outer margined with brownish-white. There is a patch of white tinged with light red on each side of the neck, and another of pure white on the wing, including the inner secondary coverts, and the bases of some of the secondary quills. The upper tail-coverts are of the same colour, but tipped with red and having a dusky spot. The fore part of the neck and breast is of a deep brownish-red; the rest of the lower parts of the same colour but paler, excepting the axillar feathers, which are dusky, tipped with white.

Length to end of tail $5\frac{1}{2}$ inches; extent of wings 9; wing from flexure $2\frac{10\frac{1}{2}}{12}$; tail $1\frac{3}{4}$; bill along the ridge $\frac{5}{12}$, along the edge of lower mandible $\frac{7}{12}$; tarsus $\frac{10}{12}$; hind toe $\frac{4\frac{1}{2}}{12}$, its claw $\frac{4\frac{1}{2}}{12}$; second toe $\frac{4\frac{3}{4}}{12}$, its claw $\frac{1\frac{3}{4}}{12}$; third toe $\frac{7}{12}$, its claw $\frac{2\frac{1}{2}}{12}$; fourth toe $\frac{4\frac{1}{2}}{12}$, its claw $\frac{1\frac{1}{2}}{12}$.

Female.—The bill, mouth, iris, and feet as in the male. The head, hind-neck and back are streaked with dusky and brownish-red, the margins of each feather being of the latter colour, the tail-coverts without any white, being yellowish-red with a dusky streak. The quills and tail-feathers are as in the male, but of a browner tint; the white spot on the wing is of much smaller extent. The throat is light greyish-brown; the cheeks of the same colour, but more dusky; the fore-neck and breast yellowish-brown, the rest of the lower parts of a paler and duller tint.

Length to end of tail $5\frac{1}{4}$ inches; extent of wings 9.

Variations.—I have not observed any remarkable variations in this species.

Changes.—The above descriptions are from individuals in perfect plumage in November, when the moult is completed. The colours remain unchanged until the beginning of spring, after which they gradually alter, so that by the middle of summer the male has the head pure black, the upper parts less variegated with red, the white on the neck pure, and the lower parts of a much lighter red; the quills and tail more tinged

with brown. The female undergoes less change. These alterations are produced by the abrasion of the margins and tips of the feathers, and the action of the weather.

Habits.—This bird has ~~hitherto~~ been generally named the Stonechat, but very inaptly, for it does not frequent stony or rocky places, its usual haunts being similar to those of the Whinchat. It is generally distributed, and although nowhere abundant, is to be seen here and there on commons, heaths, and hill pastures, overgrown with whins, juniper, and other low shrubs. I have met with it at all seasons; but in Scotland it is of unfrequent occurrence in winter, although I have seen it and obtained recent specimens there even in the midst of severe snow storms. Even in England it appears to be rarer in winter, so that probably a partial migration takes place. It is very seldom observed on the ground, its favourite station being the top twig of a whin bush or other shrub, whence it sallies forth on wing in pursuit of insects. When pursued it flits with rapidity from bush to bush, seldom allowing one to get within shot, and now and then concealing itself among the twigs. If wounded it creeps among the herbage and is with difficulty traced, although birds of this size are seldom so little injured by shot as to proceed far. If you watch its motions, without alarming it, you observe that it flits about by short starts, with a direct flight, perches on a twig, jerks its body and tail, utters at intervals a sharp note resembling the syllable *snack*, now and then flies off in pursuit of an insect, creeps among the foliage, and sometimes hops along the ground, or takes its stand on a turf or other eminence. I have always found its stomach exclusively to contain insects, chiefly small coleoptera, and without any intermixture of mineral particles.

In April it forms its nest, which it conceals among the grass or other herbage, generally under a whin bush or other shrub, and which is composed of stems and leaves of grasses intermixed with moss, and lined with finer straws, fibrous roots, hair, and wool, as well as feathers. The eggs, five or six in number, are of a light greenish-blue, marked towards the larger end with pale brown dots, their average length eight-twelfths

and a half, their breadth nearly seven-twelfths. When one approaches their nest, they manifest much anxiety, flutter and flit about, incessantly emitting their sharp snapping note, and endeavouring to lead the intruder off in pursuit of them. The young are abroad about the end of May, or the beginning of June; but I have not been able to ascertain that two broods are reared in the season.

In winter I have seen this species about the gardens and even the doors of cottages, apparently not much less familiar than the Robin; but this happens only in severe weather, for at this season it generally continues in its summer haunts, or betakes itself to thickets and hedges. Its song is short, modulated, and not unpleasant, being very similar to that of the Whinchat, and frequently performed while the bird is hovering over a bush. It is seldom heard before the beginning of April, or after the middle of June.

Mr Weir remarks that in the neighbourhood of Bathgate, in Linlithgowshire, they generally remain among whins, but that in severe winters they leave them, and retire to swampy situations. "In January 1837," he continues, "I saw two or three of them on the public road, within a few yards of a house, in search of food. They sit on the highest branch of a whin-bush, cry *chert, chert*, several times, then rise in the air, and hover like a hawk, while they sing their little song. Of all the nests of which I have been in pursuit, theirs is the most difficult to discover, as it is usually built in the middle of a collection of whins, and covered by them. The best way to find it out is to watch the female when she comes off her eggs to take food. Even then she will not go in until you retire to so great a distance that you will scarcely be able to observe her, as she hops so quickly from bush to bush, and then in a moment disappears. I have again and again beat the bush in which they had their nest, before I could make them rise, so closely do they sometimes sit. They build their nest about the middle of April. It is composed of dry grass and moss, lined with hair and feathers, and sometimes with wool. They have commonly six eggs, of a greenish-blue colour, with small spots of reddish-brown at the thicker end. I have seen the brood

when they were very young come out from under a bush to be fed by the old ones, and then immediately retire to their concealment. Their eggs are sometimes destroyed by mice."

Young.—The young when fully fledged have the bill dusky above, light-brown beneath; the feet greyish-brown. The upper parts are brown, the head darker, each feather with a linear central light greyish-yellow mark; the back mottled with larger spots of the same, edged with dusky, the tail-coverts brownish-red; the quills and tail-feathers brownish-black, edged with brownish-red, the first and second quills and the outer tail-feather edged with brownish-white; the secondary coverts are broadly tipped with light-red, and a few of the inner are more or less white. The sides of the head are dusky, mottled with brown; the throat greyish; the lower parts light yellowish-brown, the fore part of the neck and breast mottled with dusky.

Progress toward Maturity.—The young acquire the full plumage of the adults at their first moult in the end of autumn.

Genus III. Vitiflora, Bin. Wheatear.

~~SAXICOLA. STONECHAT.~~

Bill of moderate length, straight, slender, depressed at the base, compressed towards the end: upper mandible with its dorsal outline slightly declinate and nearly straight, the ridge narrow at the base on account of the breadth of the nasal membrane, the sides sloping at the base, convex towards the end, the edges sharp and overlapping, with a slight sinus, the tip declinate, narrow and rather blunt; lower mandible straight, the angle of moderate length, rather narrow, and somewhat rounded; the back broad and rather flattened at the base, narrow and convex towards the end, the sides of the crura nearly flat and sloping outwards, towards the end convex, the edges sharp and inflected, the tip narrowed to a blunt point; the gape-line straight.

The mouth rather wide; both mandibles concave within, with a median prominent line; the palate nearly flat, with two longitudinal prominent lines; the posterior aperture of the nares oblongo-linear, edged behind with small papillæ. Tongue of moderate length, sagittate, narrow, at the base papillate, two of the papillæ much larger, concave above, horny towards the end, bristly on the edges towards the end, which is slit. Aperture of the glottis with two rows and a large pad of papillæ behind. The œsophagus is of moderate width, nearly uniform in diameter; the proventriculus oblong with short oblong glandules. The stomach of moderate size, roundish-elliptical, compressed, its lateral muscles rather thick, the lower not very distinct, the tendons rather large, the cuticular lining tough and longitudinally rugous. The intestine is of moderate length and width, of nearly uniform diameter throughout; the cœca very small, oblong; the rectum dilated towards the end.

Nostrils oblong, direct, pervious, in the fore part of the

Vitiflora. Wheatear.

large and broad nasal membrane, which is anteriorly bare. Eyes of moderate size; the eyelids feathered, their edges bare and crenate. External aperture of the ear large, and roundish.

The general form is rather compact; the body ovate, the neck short, the head rather large, ovate, and somewhat depressed. The legs rather long and slender; tarsus rather long, slender, much compressed, covered anteriorly with a long plate and four inferior scutella, posteriorly with two long plates meeting at an extremely acute angle. Toes rather short, slender, the second and fourth about equal, the first strongest and longer, the third much longer, and united to the fourth as far as the second joint of the latter. Claws rather long, moderately arched, extremely compressed, laterally grooved, acute.

Plumage generally blended, the feathers rounded, with loose filaments, their plumule slender. Wings long, broad, semiovate, straight; quills eighteen; the first primary extremely small, being about a fourth of the length of the second, which is almost as long as the third, the latter scarcely longer than the second, so that the second, third and fourth are longest and nearly equal; the primaries rounded, the secondaries broad, abruptly rounded, the outer slightly emarginate. Tail of moderate length, nearly even, straight, the feathers of moderate breadth and abruptly rounded. There are short bristle-feathers at the base of the upper mandible, and the gular feathers are bristle-tipped.

I have judged it proper to divide the genus Saxicola of Temminck and other authors, for the following reasons. Motacilla Œnanthe, M. Rubetra, M. Rubicola, and M. Phœnicurus of Linnæus are very intimately allied, but present considerable differences. In the first of these species the bill is much longer, but of nearly the same form as in the rest, only the tip of the upper mandible is much less deflected, and the notch obsolete; in the second and third the tip is distinctly declinate and the notch distinct; in the fourth the bill resembles that of the first, but is shorter. The tarsi are proportionally longer in the first, which has stronger and shorter claws. In it the wings are

Vitiflora. Wheatear.

long, almost straight, and more pointed; in the second the wings are shorter and slightly concave; in the third still shorter and decidedly concave; in the fourth like those of the first. In the first the tail is of moderate length, in the second and third rather short, and in the fourth rather long. If we assume the length and form of the wing and tail as characteristic of genera, it is obviously impossible to include all the above-mentioned birds in one genus. If the form of the bill and the digestive organs alone determine the genus, all these birds ought to be grouped along with the Sylviæ, Wagtails, and other genera. But if it be expedient to separate species which differ considerably in form and habits, we may form out of the four species in question three genera. The fourth species, which by most authors is referred to a different genus, is much more allied to the first, than either the second or the third are; and it will be seen on comparing Motacilla Œnanthe of Linnæus with the generic character of Saxicola as given by M. Temminck, that it does not agree with it in respect to the wings. That species, with Turdus leucurus of Gmelin, Motacilla stapazina of the same author, and some others, I consider as forming a genus apart from such species as Motacilla Rubetra and M. Rubicola, which have the tarsi shorter, and the wings rounded and concave.

Vitiflora The ~~Saxicolæ~~ thus restricted are generally, ~~as their name implies,~~ inhabitants of rocky or stony places, although some frequent also open pastures. Our only British species, for example, is nearly as frequently found in the one kind of place as in the other; but unless they find holes or cavities to which they can retreat, they are not fond of exposed feeding-grounds. They nestle among stones, in crevices of rocks, or in holes in the ground, whether made by quadrupeds or not; move with considerable speed by leaping, and feed on insects and worms. Through the genus Petrocincla, they are allied to the Thrushes; their nearest kinsfolk on the other hand are the ~~Bushchats~~ and Redstarts; and with them they are nearly related to the Flycatchers, both in form and habits. The bill of the ~~Saxicolæ~~ is almost precisely similar to that

Chats

Wheatears

Vitiflora. Wheatear.

of the ~~Fruti~~Saxicolæ and Phœnicuri, differs but very slightly from that of the Motacillæ and Anthi, and is merely narrower than that of the Musicapæ. The ~~Saxicolæ~~ differ from the ~~Fruti~~Saxicolæ in having long straight wings, and rather long tarsi, in place of short curved wings and moderate tarsi, as well as in other respects. The Sialiæ or Blue-birds of America have the wings of the ~~Saxicolæ~~, with the bill of Erithacus, and very short tarsi, like those of Flycatchers, but stouter.

Only one species of ~~Saxicola~~ occurs in Britain, and is migratory, arriving about the middle of spring, and departing about the beginning of October.

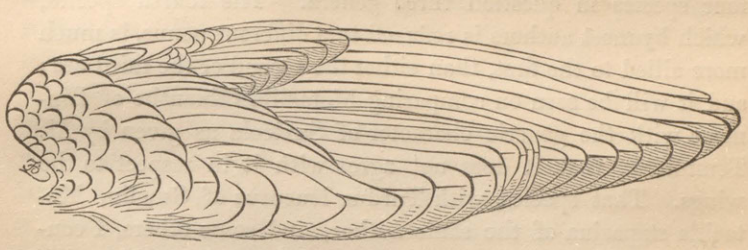


Fig. 165.

Nitiflora Common Wheatear.

~~SAXICOLA~~ ŒNANTHE. THE ~~WHITE-RUMPED STONECHAT~~.

WHITE-RUMP. FALLOW SMICH. WHEAT-EAR. WHITE-TAIL. STONE-CHAT. STANECHACK. CLACHARAN.



Fig. 166.

Motacilla Œnanthe. Linn. Syst. Nat. I. 332.
Sylvia Œnanthe. Lath. Ind. Orn. II. 529.
Wheat-ear. Mont. Orn. Dict.
Traquet moteux. Saxicola Œnanthe. Temm. Man. d'Orn. I. 237.
Wheat-ear. Saxicola Œnanthe. Selb. Illustr. I. 181.
Saxicola Œnanthe. Wheat-ear. Jen. Brit. Vert. An. 119.

Male with the upper parts light ash-grey ; a black band from the bill, over the cheek and auricular region, rump and upper tail-coverts white. Female with the upper parts brownish-grey, a brown band on the cheek, the rump as in the male. Young with the upper parts greyish-brown, the central part of each feather paler, the lower parts light greyish-yellow, the feathers of the neck and breast tipped with brown, the dark band on the side of the head wanting.

Male.—This lively and beautiful bird, which, by its attachment to rude stone or turf walls, and the brightness of its colours as compared with those of most of our small birds, attracts the notice of the least observant, is of a rather compact form, its

Vitiflora Œnanthe.

body being moderately full, the neck short, the head rather large, ovate and depressed, the wings and legs rather long, and the tail of moderate length. The bill is also of moderate length, and in all respects as described in the generic character. Both mandibles are internally concave, with a central prominent line. The tongue is five-twelfths and a half in length, slit and fringed at the point. The œsophagus is two and a half inches long, moderately wide, its average diameter being two-twelfths and a quarter. The stomach is broadly elliptical, compressed, eight-twelfths long, its lateral muscles moderately strong, the lower indistinct; its cuticular coat tough, rugous, and of a reddish-brown colour. The intestine is seven inches long, its duodenal portion two-twelfths and a half in diameter; the cœca oblong, one-twelfth in length, and one inch distant from the extremity.

The nostrils are oblongo-elliptical, one-twelfth long; the aperture of the eyes two-twelfths across; that of the ears three-twelfths. The feet are slender; the tarsi longer than the middle toe, slender, much compressed, covered anteriorly with a long plate and four inferior scutella, posteriorly with two long plates meeting at a very acute angle; the hind toe stouter, the two lateral equal, the third much longer; the first with eight, the second with eight, the third with thirteen, the fourth with twelve scutella. The claws rather long, moderately arched, much compressed, laterally grooved, very acute, but in old birds often blunted.

The plumage is soft and blended; the gular feathers bristle-tipped, the bristle-feathers at the base of the upper mandible small. The wings are rather long; the quills eighteen; the first about three quarters of an inch long, the third longest, but the second and fourth almost equal; the third and fourth slightly cut out on the outer web towards the end; all the primaries rounded, the outer secondaries abruptly rounded and slightly emarginate. The tail is of moderate length, emarginate, the lateral feathers slightly bent outwards, all broad and rounded.

The bill, inside of the mouth, and tongue, deep black. The iris brown. The feet and claws black. The upper part of the

head, the hind-neck, the back and scapulars, are ash-grey, each feather when perfect slightly tipped with pale-brown. The forehead is white, and a band of the same colour extends to a considerable distance beyond the eye. From the nasal membrane a broad band of black passes under the eye, including the cheeks and auricular region. A small part of the rump and the upper tail-coverts are white. The fore-neck and anterior part of the breast are of a delicate pale yellowish-brown approaching to cream-colour, the throat and the rest of the lower parts greyish-white. The quills, alula, and coverts, are brownish-black, all more or less margined and tipped with brownish-white; the lower wing-coverts brownish-black, broadly edged with white. The tail-feathers are white in their basal portion, brownish-black at the end for nearly a fourth of their length, the two middle for more than half their length. The tibial feathers are blackish at the base, their edges yellowish-white.

Length to end of tail $6\frac{3}{4}$ inches; extent of wings $12\frac{1}{2}$; bill along the ridge $\frac{7}{12}$, along the edge of lower mandible $\frac{10}{12}$; wing from flexure $3\frac{1}{12}$, tail $2\frac{1}{2}$; tarsus $1\frac{1}{12}$; hind toe $4\frac{1}{2}$ twelfths, its claw $\frac{4}{12}$; second toe $4\frac{3}{4}$ twelfths, its claw $\frac{2}{12}$; third toe $7\frac{1}{2}$ twelfths, its claw $\frac{3}{12}$; fourth toe $4\frac{3}{4}$ twelfths, its claw $\frac{2}{12}$.

Female.—Bill deep black; feet and claws brownish-black; iris light brown. The general colour of the upper parts is light reddish-brown, intermixed with ash-grey; the forehead brown; a brownish-white band over the eye; and a broader band of brown under it, including the ear-coverts. The fore-part and sides of the neck, and the anterior part of the breast, are light reddish-brown, the rest of the lower parts pale greyish-brown; the axillar feathers greyish-white, and the lower wing-coverts blackish-brown, broadly edged with brownish-white. The feathers of the wings are blackish-brown, edged with dull reddish-brown; the tail darker, the proximal portion of each feather white in the same proportion as in the male, excepting the two middle feathers, of which the shaft only is white at the base. The upper tail-coverts and hind part of the rump are dull white.

Length to end of tail $6\frac{1}{2}$ inches; extent of wings $11\frac{1}{4}$; bill along the ridge $6\frac{1}{2}$ twelfths; along the edge of lower mandible $1\frac{8}{12}$; wing from flexure $3\frac{1}{12}$; tarsus 1; middle toe and claw $\frac{1}{12}$.

Variations.—In adult individuals the variations of colour are considerable, some having the upper parts of a purer grey than others, and the lower parts more white. But these differences are chiefly dependent upon age, the grey and white becoming purer, and the black and brown deeper in old birds, and upon the season at which specimens are obtained, those shot towards the end of summer being more purely coloured than those procured in spring, when the tips of the feathers are more or less complete. Individuals are seen of much larger size than others, and these I have usually found in the hilly districts.

Changes.—The changes which the plumage undergoes in the individual arise from the wearing of the edges of the feathers, in consequence of which the grey of the back is lighter and more uniform the nearer the period of moult.

Habits.—The ~~Stonechat~~ Wheatear is the earliest of our summer visitants, arriving generally about the middle of March, but in some seasons considerably later or earlier. I have seen it near Edinburgh on the 28th of February, more commonly, however, about the 20th of March, while in the Outer Hebrides it does not appear before the middle of April. It immediately betakes itself to open dry pastures, whether in the vicinity of the sea, or in the interior, but always in places where it can retreat to holes or cavities, whether among stones or in the ground. It is generally distributed in such localities, being to be found equally in the southern parts of England, and in the most northern districts of Scotland, and is nowhere more plentiful than in the Outer Hebrides, and in the Orkney and Shetland Islands. Along the coast, especially on sandy downs, where there are rabbit-warrens, or at least abrupt banks, it is most frequent; but in the valleys of the midland districts, especially where there are extensive stone or turf fences, it is by no means

uncommon. It is especially fond of stony slopes in the vicinity of pasture grounds, and in such places several pairs may often be met with in a small space, whereas on open downs they occur only at long intervals. But in whatever place it may be, its presence is readily detected, for, although generally shy, it flies up to a safe distance, and attracts notice by its rather loud and sharp cry, which bears some resemblance to the noise made by knocking a small stone against another. On moist moorlands, in heathy tracts, and in woods or thickets, I have never met with it.

On the ground it hops with great celerity, jerking out its tail, and inclining its body, whenever it stops. When engaged in searching for food, and still more if disturbed or pursued, it emits a cry resembling the syllables *peep*, *chack*, *chack*, whence, and on account of its predilection for stony places, it is named in most parts of Scotland the Stane-chack. In the Gaelic districts it bears the name of Clacharan, or little mason. It flies low over the ground, by short starts, and on alighting usually commences hopping. An intruder on its haunts usually observes it perched on a stone or turf, or other eminence; and when alarmed it betakes itself to walls, along which it flies, generally keeping at a considerable distance. But although shy and vigilant, it comes up when one approaches its nest, and manifests much anxiety, fluttering about, hopping, dipping, and incessantly emitting its *chack chack*, and this the more vehemently the nearer you come to its treasure. On ordinary occasions it is extremely active, and is seldom to be seen unless in motion.

Its food consists of insects of various kinds, small testaceous mollusca, and worms. In pursuit of flies it often performs a short excursion into the air, springing from an eminence, or even from the plain ground. Its song is a short, lively, and pleasantly modulated warble, which it performs sometimes when perched on a rock, wall, or turf, but more frequently while hovering at a small height in the air, and often in the midst of its short flights when pursued or disturbed. It is much superior in clearness and sweetness to the song of the Bushchats, which it yet resembles in character.

The stony slopes of Arthur's Seat and Salisbury Craigs, in the King's park, near Edinburgh, are favourite resorts of the Wheatears; and there, although they are much disturbed by boys, their manners may be satisfactorily studied with little trouble. So abundant are they in Harris that the boys regularly search the walls every year in the beginning of May for their nests, of which great numbers are destroyed, the object of the plunderers being to procure the eggs for food. I have often joined in these expeditions, and in that district never found the nest elsewhere than in holes in the rude stone walls. But in the sandy pasture tracts along the shore, the nests are often found in deserted rabbit-holes. The materials of which the nest is composed vary according to the locality. It is bulky, with a rather shallow cavity; its exterior formed of grasses and fibrous roots, intermixed with mosses of various kinds, the interior of moss, hair, wool, and feathers. One taken from a stone wall at the base of the Pentland Hills, was composed of stalks and roots of grasses, fibrous roots of other herbaceous plants, and a large proportion of hypna, the interior being of mosses of various genera, chiefly hypna, several feathers of the Wood Pigeon, two or three quills of Parus cœruleus, and a considerable quantity of horse hair and wool. Another obtained in West Lothian is hemispherical, rather compact, composed of straws and fibrous roots, the latter predominating internally, and mixed with hair and wool, with a few ducks' feathers; its external diameter four inches and three quarters, the internal two and three quarters. The eggs are from four to seven, of an elongated oval form, sharpish at the small end, light greenish-blue, without spots, averaging ten-twelfths in length, and seven-twelfths in their greatest breadth.

The young are abroad from the middle of May to that of June; and a second brood is generally reared before the end of July. Thus, on the 7th June 1832, I saw in the King's Park at Edinburgh two families of Wheatears, of which I shot three young individuals; on the 2d September of the same year, I saw a flock of young birds with their parents on the top of a hill near Selkirk; and on the 15th August 1834, chased a similar assemblage near the lower part of Mannor Water in

the same county. Both young and old birds moult previously to their leaving the country, as I have ascertained from observation; but probably the young of late broods take their departure without changing their plumage. When the young birds are pursued, they scatter, fly along the walls, dive into holes, reappear in another place, and are very shy, although always much more easily obtained than old individuals. Although this bird is by no means fond of perching on bushes, I have seen it alight on whins growing in stony places, and I saw an individual in April 1837 settle on an ash tree close to the wall of the lunatic asylum at Morningside, near Edinburgh. Its habits in this respect are very different from those of the ~~Bramble and Whin Bushchats~~, which are essentially twig-frequenters.

Stonechat and Whin chat

At its arrival and previous to its departure, it is generally in good condition, and its flesh being very delicate and sapid, it is caught in the southern parts of England in great numbers, and sold in the markets at a high price. In Scotland, however, I have not heard of its being used as an article of food, although I am entitled from experience to commend the good taste of those who consider it a delicacy. The eggs are still more delicious ~~; but as a truly aristocratic food, especially for nervous females, and hysterical dandies, I can more conscientiously recommend those of the Golden-crested Kinglet and Blue Tit.~~ "The number of Wheatears," says Montagu, "that breed in this country, must be very considerable, but so dispersed that few are seen at that season in the same situation. In September they begin to retire, and seem to assemble from all parts to the Sussex and Dorset downs contiguous to the coast, preparatory to their departure. The quantity taken annually about Eastbourn is prodigious; Mr Pennant says 1840 dozen. These are caught in a singular manner, by placing two turfs on edge; at each end a small horse-hair noose is fixed to a stick, which the bird, either in search of food or to evade a storm of rain, attempts to get under, and is caught. Upon inquiry of the shepherds, whose trade it is, we have been informed fifty or sixty of these traps have had a bird in them of a morning; sometimes several mornings together, and then for a day or two, scarce one is to be seen; and yet they are never

observed to come in flocks; and it is the general opinion that they come in the night. These birds usually sell for a shilling a dozen; and it is a common custom in those parts where they are taken to visit the trap, take the bird out, and leave a penny in each as a reward for the shepherd."

Mr William Markwick, in the fourth volume of the Linnæan Transactions, states that being found in great plenty on the South Downs, and being justly esteemed a great delicacy for the table, "vast numbers of them are annually caught by the shepherds as they tend their flocks. These Wheatear traps consist of horse-hair nooses, placed under a sod of turf dug out of the ground for that purpose. They are set up every year on St. James's day, the 25th of July, soon after which time they are caught in numbers truly astonishing, when we reflect that it is a solitary bird, more than two or three being scarcely ever found together. Observing that all the birds which are caught in the proper season had the same coloured plumage as the hen birds, I made some inquiries respecting them of a shepherd at Eastbourn, who informed me that the flights consisted chiefly of young birds, which arrived in the greatest numbers when a westerly wind prevailed, and that they always came against the wind. He told me that on the 15th and 16th of August 1792 he caught twenty-seven dozen with only a few old birds amongst them; but this is a small number compared with the almost incredible quantity sometimes taken. A gentleman informed me that his father's shepherd once caught eighty-four dozen in one day. Early in the spring only a few old birds are to be seen, and none (that I could ever observe) in the winter. I enquired of the shepherd whether these birds breed on the South Downs; the answer was, a few only."

Young.—The young when newly fledged are coloured as follows. The upper parts are light greyish-brown, the central part of each feather on the head paler; the rump white, most of the feathers tipped with brown. The lower parts are light greyish-ochre, the feathers of the neck and breast tipped with brown. The band over the eye is indistinct, and the dark band on the side of the head is wanting; the smaller wing-coverts are dusky with greyish-yellow margins; the larger coverts, alula,

Common Wheatear.

quills, and tail-feathers are deep brown, broadly margined and tipped with brownish-red. The tail-feathers are white at the base, excepting the two middle. The bill is dark-brown above, paler beneath; the feet bluish-grey, the claws dusky. The males differ from the females chiefly in having the rump white, it being in the latter brownish-white.

Progress toward Maturity.—At the first autumnal moult, the young assume the colours described as characterizing the old birds; but the tints are more tinged with brown.

Male in Winter Plumage.—In its perfect plumage the male has the grey of the upper parts tinged with red, the edges of all the feathers being of the latter colour; the lower parts light reddish-brown, deeper on the fore-neck and breast; the white and black bands on the head as in summer, but the ear-coverts slightly tipped with brown. In all other respects the plumage is as described, the edgings of the wing and tail-feathers being only broader. The bill and feet deep black.

Female.—The female is of a uniform pale brown above, the forehead tinged with red, the band over the eye reddish-white, that under it brownish-red; the lower surface light brownish-red, deeper on the fore-neck and breast, and fading behind into cream-colour.

Remarks.—I have found individuals of both sexes in May retaining the winter plumage in its perfect state, the feathers entire, and the colouring as above described. Such birds are probably individuals of late broods, which have moulted in their southern retreats. Similarly perfect individuals of the Willow Wren, and other species of this family, are met with.

Mr Jenyns, perhaps copying Temminck, states that in the male the two middle feathers of the tale are wholly black; but I apprehend that both gentlemen are wrong in this matter; at least, I have never met with an adult male that had not more than a fourth of the basal portion of the two middle tail-feathers pure white. The females, however, have only the base of the shaft and a small portion of the downy part of these feathers white.

Genus IV. RUTICILLA. REDSTART.

The small group of birds known by the name of Redstarts is intermediate between the Motacillæ, Saxicolæ, Sylviæ, and Setophagæ; and, according to the principle of minute division which I have adopted, cannot with propriety be referred to any of these genera, although they are perhaps more closely allied to Saxicola.

Their bill is rather short, slender, a little depressed at the base, compressed towards the end: the upper mandible with its dorsal outline slightly declinate and nearly straight, the ridge very narrow at the base, the nasal membrane being proportionally broad, the sides sloping at the base, convex towards the end, the edges sharp, direct and overlapping, the tip slightly declinate, very narrow, and rather acute, with a slight sinus on each side; the lower mandible straight, the angle of moderate length, rather narrow, and somewhat rounded, the back rather flattened at the base, very narrow towards the end, the sides of the crura nearly flat and sloping outwards, convex towards the end, the edges sharp and inflected, the tip narrowed to a bluntish point; the gape-line straight.

The mouth of moderate width: both mandibles concave within, with a median prominent line; the palate nearly flat, with two longitudinal prominent lines; the posterior aperture of the nares oblongo-linear, edged behind with small papillæ. Tongue of moderate length, sagittate, narrow, at the base papillate, two of the papillæ much larger, concave above, bristly on the edges towards the tip, which is slit. The œsophagus is of moderate width, and nearly uniform in diameter; the proventriculus oblong, with short oblong glandules; the stomach roundish-elliptical, compressed, its lateral muscles rather thick, the cuticular lining longitudinally rugous; the intestine of moderate length and width; the cœca very small, and oblong.

Nostrils very small, elliptical, pervious, in the fore part of

the large nasal membrane, which is anteriorly bare. Eyes of moderate size ; the eyelids with two rows of feathers near the edge, which is crenate. External aperture of the ear large and roundish.

The general form is rather slender ; the body ovate, the neck short, the head ovate, rather flattened anteriorly. The legs of moderate length, and slender ; the tarsus moderately long, slender, very much compressed, anteriorly with a long plate and three inferior scutella. Toes rather long, very slender, much compressed, the third much longer than the two lateral, which are nearly equal, the first stouter. Claws rather long, moderately arched, very slender, extremely compressed, laterally grooved, acute.

Plumage blended and very soft. Wings rather long, broad, semi-ovate, almost straight ; quills eighteen ; the first primary very small, being about a third of the length of the second, which is considerably shorter than the third ; the latter longest, but scarcely exceeding the fourth, which is little longer than the fifth ; the primaries rounded at the end, the secondaries rather broad, and obliquely rounded. Tail rather long, nearly even, straight, of twelve narrow, obliquely rounded feathers. There are short bristle-feathers at the base of the upper mandible, and the gular and loral feathers are bristle-tipped.

The Redstarts have the bill shorter than that of the Stonechats, and more slender than that of the Bushchats. Their form is less full, their bill more slender, their wings longer and straighter, and their tail also longer, than those of the Bushchats. They have a rather weaker bill and longer tarsi and wings than the Sylviæ, which however they very closely resemble. Intermediate in form between the Motacillæ, Saxicolæ and Sylviæ, their habits are analogous, some species in this respect resembling one of these genera more than another. Their food is composed of insects, which they generally catch on wing, of larvæ, pupæ, and berries.

This genus is composed of Sylvia Suecica, S. Phœnicurus, S. Tithys, and three or four other species, all natives of the old continent. Only one species is of common occurrence in Britain ; but two others have been met with there in a very few instances.

1. RUTICILLA CYANECULA. THE BLUE-THROATED REDSTART.



Fig. 167.

Motacilla suecica. Linn. Syst. Nat. I. 336.
Motacilla suecica. Lath. Ind. Orn. II. 521.
Bec-fin Gorge-bleue. Sylvia suecica. Temm. Man. d'Orn. I. 216.
Blue-throated Redstart. Phœnicura suecica. Selb. Illustr. I. 195.
Sylvia suecica. Blue-throated Warbler. Jen. Brit. Vert. An. 104.

Male with the upper parts wood-brown; the fore-neck and breast with patches of ultramarine blue and light-red; the tail light-red, towards the end brownish-black. Female with the upper parts as in the male; the throat blue, with a curved blackish line.

Male.—The Blue-throated Redstart, which has a very slender claim for admittance into the British Fauna, is somewhat larger than the White-fronted species, which it resembles in form, and so far in colour as to have a portion of the tail red. It is altogether, however, more slender, its head more inclining to oblong, its bill rather short, straight, much compressed towards the end, the point of the upper mandible very slightly deflected, the notch obsolete. The feet are very slender; the tarsus rather long, much compressed, anteriorly covered with a long plate and three inferior scutella; the toes of moderate length, extremely slender, the first with ten, the

second with ten, the third with fourteen, the fourth with twelve scutella; the claws rather long, moderately arched, slender, extremely compressed, and tapering to a fine point.

The plumage is soft and blended, the feathers oblong, with loose margins, and a slender plumule. The wings are rather long; the first primary scarcely more than a third of the length of the second, which is four-twelfths of an inch shorter than the third; that and the fourth are equal, and scarcely exceed the fifth; the second and sixth nearly equal; the secondary quills very long and rounded. The tail is rather long, slightly rounded, straight, its feathers of moderate breadth, and obliquely rounded, but with the extremity rather pointed.

The bill is light-brown at the base, darker towards the end; the tarsi wood-brown, the toes and claws a little darker. The upper parts are wood-brown, the feathers of the head dusky in their middle parts, the rump paler, and somewhat tinged with red; the upper tail-coverts with a light red patch in the middle. The wings are of the same colour as the back, the quills margined externally with paler, the middle tail-feathers are wood-brown, their outer web reddish at the base; all the rest are light-red or reddish-orange for nearly two-thirds of their length from the base, the remaining third brownish-black, the tips fading to brownish-grey, and the margins of the outer greyish-white. A whitish band extends from the nostrils over the eye; the loral space dusky. The throat is ultramarine blue, that colour margined beneath by dusky spots; then succeeds a patch of orange red, on the lower part of which are some white spots; then a broad band of ultramarine, terminated by a narrow band of black, and another of white; beneath which, occupying the fore-part of the breast is a broad band of orange red. The rest of the lower parts are whitish, the sides, wing-coverts, and tail-coverts pale reddish-yellow.

Length to end of tail $5\frac{1}{12}$ inches; bill along the ridge $5\frac{1}{4}$ twelfths; along the edge of lower mandible $8\frac{1}{2}$ twelfths; wing from flexure $3\frac{1}{4}$; tail $2\frac{1}{2}$; tarsus $1\frac{1}{12}$; first toe $3\frac{1}{2}$ twelfths, its claw $\frac{4}{12}$; second toe $4\frac{1}{4}$ twelfths, its claw $2\frac{1}{2}$ twelfths; third toe $\frac{8}{12}$, its claw $2\frac{3}{4}$ twelfths; fourth toe $4\frac{1}{2}$ twelfths, its claw $2\frac{1}{2}$ twelfths.

Female.—The female has the upper parts as in the male, but with the red of the tail less bright, and the dark band more brown. The throat is white, with a curved band of blue having black spots intermixed. The rest of the fore-neck and upper part of breast pale orange-brown; the remaining parts brownish-white.

Variations.—Individuals vary considerably in colour, the tints being more or less bright, and the red patch between the ultramarine bands on the fore-neck in some white.

Habits.—This very beautiful bird has hitherto occurred in Britain only in two instances. In May 1826 an individual was shot on the hedge bounding the Town Moor of Newcastle, and is now in the museum of the Literary and Philosophical Society of that city. Another is stated in the Naturalist, Vol. II, p. 275, by Mr Dale, to have been killed in Dorsetshire, and to be preserved in the museum of Mr R. A. Cox. The species is said to be not uncommon in various parts of the continent during summer and autumn, and to extend from Spain and Italy to Siberia, Russia, Finland, and the north of Sweden. It feeds on insects, worms, and small fruits. Its song is represented as lively and pleasantly modulated, sometimes performed when the bird is on the wing, and often heard in the dusk, or in the early part of the night. It frequents low moist places, covered with grass, willows, or other shrubs, among which it places its nest, which is composed of withered stems and leaves, the lining being of finer materials of the same nature. The eggs, five or six in number, are nine-twelfths of an inch long, five and a half twelfths broad, greenish-blue, without spots. The nest, in its position and texture, resembles those of the Pipits and Chirpers; but the eggs are similar to those of the common Redstart and Hedge Chanter.

Young.—The young are said by M. Temminck to have the plumage brown, spotted with whitish, and to have a large white space on the throat.

Remarks.—The bird which forms the subject of this article is unquestionably more closely allied to the common or White-fronted Redstart than to any other British bird. The wings of the two species are so very similar, not only in form, but in colour, that when separated one cannot distinguish them. The tail is of the same length, and similar in form, as well as partly even in colour. But the bill is more slender, and the tarsi are much longer. The form of the head of the Common Redstart is similar to that of the Wheatear and Pied Wagtail, and that of the Blue-throated Redstart more resembles that of ~~Motacilla~~ Budytes flava. The bill of the Ruticilla Cyanecula is narrower at the base than that of the other species or of the Wagtails, and is almost precisely the same as that of Anthus pratensis. Its feet are proportionally longer than those of any of our Wagtails, or of the other Ruticillæ. Its affinity to the Wagtails is less, however, than to the Sylviæ and Chirpers, for its wings differ essentially from those of the Anthinæ, inasmuch as in the latter the first quill is obsolete or minute, and some of the secondaries extremely elongated, so as to give a peculiar character to the wing. I cannot therefore agree with Mr Blyth in considering the species which forms the subject of this article as belonging "to the Wagtail subfamily." As to its claims for generic distinction, I have only to say that its peculiarities either of form or of habits do not seem to me sufficient to warrant our separating it from the Redstarts. Mr Blyth thinks otherwise, and gives reasons for his opinion :—"When first I saw the Bluebreast *alive*, in Mr Rennie's aviary at Lee, I was not a little surprised to perceive that the bird which has been placed by every writer in the same genus with the Redstarts and the Robin Redbreast, belonged most obviously to a very different group, to the Wagtail subfamily. Nothing can more strongly shew the difficulty of arranging birds from mere cabinet specimens, and the necessity of studying living nature, than this placing of the Bluebreast in the genera Sylvia and Phœnicura. I think I may confidently assert, that no naturalist who has thus arranged it had ever seen the living bird. The tail of the Bluebreast is partly red, but, with the exception of this very trivial particular, there is no resemblance whatever between

this bird and the Redstarts." (This assertion is certainly not correct). "Even in a stuffed specimen, the form of the head will shew its proper situation. The Bluebreast does not hop like the Redstarts, but *runs* about in the manner of the Wagtails and Pipits; it has a remarkable habit of continually spreading its tail; and should there not be already a genus of foreign birds, in which this beautiful species could be placed, the term *Pandicilla* might be given to it for a generic designation."

I imagine this bird, however, to be one of those which belong so to speak to several genera; or rather to belong more peculiarly to the genus Ruticilla, but to indicate the affinity of that genus, as to the bill and the form of the head, to Anthus, as well as to Sibilatrix. The habit of spreading its tail, especially when singing in the air, is common to all birds which sing during their descent, even the Whitethroat; and that of running instead of hopping, is not necessarily Motacillary, for the Hedge ~~Chanter~~ Accentor and even the Common Redstart, run rather than hop. Every species of a genus indicates affinity to species in other genera, and this very circumstance prevents the possibility of forming strictly defined genera, which in fact have no existence in nature.

2. RUTICILLA PHŒNICURUS. Linn. THE WHITE-FRONTED REDSTART.

REDSTART. REDTAIL. FIRETAIL.



Fig. 168.

Motacilla Phœnicurus. Linn. Syst. Nat. I. 335.
Sylvia Phœnicurus. Lath. Ind. Orn. I. 191.
Redstart. Mont. Orn. Dict.
Becfin des murailles. Sylvia Phœnicurus. Temm. Man. d'Orn. I. 220.
Redstart. Phœnicura Ruticilla. Selb. Illustr. I. 191.
Sylvia Phœnicurus. Redstart. Jen. Brit. Vert. An. 104.

Male with the middle of the forehead white, its anterior part, the cheeks and throat black, the hind-head, neck and back deep ash-grey, the breast, rump and tail reddish-orange. Female with the upper parts reddish-grey, the throat reddish-white, the breast, rump, and tail light reddish-orange.

Male.—This beautiful and lively little bird is in its proportions exactly as described in the generic character, its general form being rather slender, its head ovate and of ordinary size, its bill rather short, straight, with the edges a little inflected, the tip of the upper mandible slightly declinate, and the notch obsolete; the tarsi of moderate length, and slender, as are the toes; the claws rather long and arched.

The plumage is soft and blended, the feathers being linear-oblong with the margins loose. The wings are rather long; the first primary quill about a third of the length of the second, which is shorter than the sixth, the fourth longest, the third and fifth scarcely shorter; the third, fourth, and fifth slightly cut out on the outer web; the secondaries obliquely and abruptly rounded. The tail rather long, slightly rounded, its feathers narrow, and obliquely rounded.

The bill and feet are black; the iris dark brown. The anterior part of the forehead, the loral, auricular, gular, anterior and lateral cervical spaces, are black, the feathers tipped with brownish-white. The forehead and a line over the eye are white. The upper part of the head, the hind-neck, and the back, are ash-grey, the feathers slightly edged with light brown. The rump and tail are reddish-orange, or yellowish-red, the inner webs of the two middle feathers brown. The quills and large coverts are wood-brown, edged with paler. The breast is yellowish-red, the sides, lower wing-coverts, and other inferior parts the same but paler, the abdomen nearly white.

Length to end of tail $5\frac{3}{4}$ inches; extent of wings $9\frac{1}{4}$; wing from flexure $3\frac{2}{12}$; tail $2\frac{1}{4}$; bill along the ridge $\frac{5}{12}$, along the edge of lower mandible $\frac{8}{12}$; tarsus $\frac{11}{12}$; first toe $\frac{3\frac{1}{2}}{12}$, its claw $\frac{3}{12}$; second toe $\frac{4\frac{1}{2}}{12}$, its claw $\frac{1\frac{3}{4}}{12}$; third toe $\frac{6\frac{1}{2}}{12}$, its claw $\frac{2\frac{3}{4}}{12}$; fourth toe $\frac{4\frac{1}{2}}{12}$, its claw $\frac{1\frac{3}{4}}{12}$.

Female.—The female differs considerably in colour. The upper parts are reddish-grey, the quills and upper wing-coverts greyish-brown, margined with reddish; the rump and tail reddish-orange, lighter than in the male, the two middle-feathers brown. The throat is reddish-white, the breast light orange-red, the lower tail-coverts paler, the abdomen reddish-white.

Length to end of tail $5\frac{7}{12}$; extent of wings $9\frac{1}{12}$.

Variations.—The variations of colour in adults are inconsiderable, excepting those arising from the effects of the weather. The above descriptions are from individuals in perfect plumage; but when the summer is advanced, the edges of all the feathers being worn, the grey of the back becomes pure, as do the black

of the throat and the red of the other parts. The wings and tail are then lighter.

Habits.—The Wheatear and the Redstart present a considerable mutual resemblance in form, colour, and habits. The first time when I took particular notice of the actions of the latter bird, was on the 26th July, 1835, when, observing a male at Swanston, a village about four miles from Edinburgh, at the base of one of the Pentland Hills, I watched it for some time. It took its station on one of the top-stones of a rude wall, where it kept in almost constant motion, and at intervals uttered its two notes, which I fancied to resemble the syllables *oi-chit*, the first long and plaintive, the other short and similar to that of the Bushchats. Sometimes two of these short notes were emitted. Observing me it evinced much restless anxiety, but flitted now and then from the wall, caught an insect on wing, returned, and watched me, moving its body, and vibrating its tail several times with rapidity at each start or movement, and uttering its cry of alarm. At length, having by several little excursions caught a number of insects on wing, and finding that I was not disposed to depart, it flew into a whin bush at hand, where I saw it deliver the insects to a bird, which, on going up, I found to be a young one perched on a lower twig. It was fully fledged, and flew off to a distance. No cry was emitted all this time by the young bird, which seemed instinctively, or rather from being apprised of danger by its parent, to keep as much concealed as possible.

In June 1837, I watched for some time another male, which had taken its station on a garden wall, at Newington, and observed that in its motions and mode of flight it greatly resembled the Grey Flycatcher. It not only caught insects by sallying after them on wing, but made excursions into the neighbouring bushes, and repeatedly descended to a green, where it remained only a few moments to pick up something, without hopping about, and flew back to the wall.

But the Redstart, although very partial to walls, whether bare or ivied, rough or plastered, of stone or brick or even turf, also frequents trees and bushes, especially those in lanes and

on the margins of woods and thickets, and there searches for its insect food, moving about much more by the aid of its wings than of its feet. I have also met with it in hawthorn hedges near gardens, and the young on leaving the nest generally betake themselves to bushes or trees, where they are fed for some days until able to shift for themselves. It might therefore be disputed whether it ought to be named the Tree Redstart, or the Wall Redstart, and should one propose to name it the Bush Redstart, he would have good reason to do so. Generally shy and vigilant, it seldom allows a near approach, unless in the breeding season, when the male may frequently be seen stationed on some eminence not far from the nest in which his mate is sitting. There he now and then attunes his pipe and sings his little song, which although brief and not possessed of much melody, is pleasing. Sometimes the song is emitted while the bird hovers on wing, and even while it flies from one station to another. It is heard in fine weather at early dawn, as well as in the evening twilight, and at all intermediate hours, although, being neither loud nor attractive by its character, it is little noticed.

The mode of progression of the Redstart is similar to that of the Wheatear, for it neither walks nor runs, but advances by leaps. Unless on a wall, or on bare ground, however, it seldom hops much, for it procures its food chiefly by sallying after insects on wing, or by alighting on the ground to pick up those which it has observed among the herbage, and on trees it flies from branch to branch.

It is always to gardens or the neighbourhood of old walls that it betakes itself on its arrival, which happens later or earlier, according to the mildness of the season, but in the south of England about the middle, and in that of Scotland towards the end of April. It has been observed in the southern, eastern, and northern counties of England, as well as in Wales; and in Scotland, although nowhere very common, it occurs in the lower districts from the borders to the extreme north, but does not visit the Outer Hebrides. Although thus extensively distributed, it is seldom to be seen by a person traversing the country, as it does not travel far from its place of abode. In

the Lothians, for instance, one scarcely meets with a pair in the course of a ramble of fifteen or twenty miles, although in gardens it may be the subject of everyday observation, and is not difficult to be procured by those who know the places frequented by it. Sometimes it takes up its residence in rocky or stony places, like those selected by the Stonechat. When its young come abroad, it seems to prefer the hedges, thickets, and woods. The period of its departure varies from the middle of September to near the end of October.

The nest is generally placed in a hole or cavity in a wall, or among stones, or in the chink of a rock, but sometimes in the hole of a tree. One found in the first of these situations is rather bulky, having an external diameter of four inches and a half, its internal being three inches, and its depth an inch and a half. It is composed of fibrous roots and moss, and is plentifully lined with hair of various animals, and a few small feathers. The eggs are generally six or seven, of a light greenish-blue colour, and scarcely distinguishable from those of the Hedge Chanter, being of the same form, but considerably smaller, their average length nine-twelfths of an inch, their breadth six-twelfths. I have known of its building in the thatched roof of a house, but the place usually chosen is the hole of a wall, so that, considering also its habits, I think the name of Tree Redstart, applied to it by some writers, is less appropriate than that of Wall Redstart.

As to the motion of the tail in this bird, which has supplied some observers with a subject of dispute, I am convinced that it is vertical, that is, up and down, and not alternately to either side, although at each jerk the feathers are a little spread out, as is the case with those of many other birds of this order, as the Stonechat and Bushchat. It is said to imitate the notes of other species. "In confinement," says Mr Sweet, "it will sing by night as well as by day, if a light be kept in the room where it is; if brought up from the nest, it may be learned (taught) to sing any tune that is whistled or sung to it. One that I was in possession of some years back, learned to sing the Copenhagen Waltz, that it had frequently heard sung, only it would sometimes stop in the middle of it, and say

chipput, a name by which it was generally called, and which it would always repeat every time I entered the room where it was, either by night or day."

Mr Weir has favoured me with the following notice respecting this species. "In this neighbourhood (Bathgate, Linlithgowshire) it appears about the end of April or beginning of May. A short time after their arrival, they make choice of their partners, and look out for situations where they intend to build their nests, which they place in old walls, and in clefts of the rocks. Although they are very shy birds, yet they sometimes nestle in places that are much frequented. About a mile from Bathgate, there are three cottages belonging to the Earl of Hopetoun, within a few yards of the public road, where, at the extremity of a hole in the gable of one of them, about the middle of May 1835, a pair of Redstarts took up their residence, and reared their young. And, what is very astonishing, a pair built last summer (1837) in the same situation, although a weaver had taken possession of the house, and had, from five o'clock in the morning until ten at night, three looms in continual operation, within twelve feet of the nest, which was in the inside of the garret, and only a few open planks placed between them. At the bottom of the air-pipe of the stables of Mr Gillon of Wallhouse, for four successive years, a pair of them built their nest. About the beginning of June 1835 I caught them in a trap cage, and neither last year nor this have any made their appearance. From the annual continuance of a nest in the same spot, it is highly probable that one, if not both, of the birds had traversed the whole of the south of Europe, and perhaps part of Africa, exposed to innumerable dangers and occasional want of food. I have heard the male sing some very sweet and plaintive notes, but so low that he could not be heard at any great distance."

Young.—The young have the upper parts brownish-grey, the forehead without white, the throat lunulated with white, the red of the fore-neck and breast similarly variegated.

3. RUTICILLA TITHYS. THE BLACK-BREASTED REDSTART.

BLACK REDSTART. BLACK REDTAIL.

Sylvia Tithys. Lath. Ind. Orn. II. 512.
Bec-fin Rouge-queue. Sylvia Tithys. Temm. Man. d'Orn. I. 218.
Tithys Redstart. Phœnicura Tithys. Selb. Illustr. I. 193.
Sylvia Tithys. Black Redtail. Jen. Brit. Vert. An. 105.

Male with the upper parts greyish-blue; the throat and breast black, the rump and tail-coverts red. Female greyish-brown above, light grey beneath.

Male.—The Black-breasted Redstart is in form and size almost precisely similar to the White-fronted or common species, but differs in colour, its breast being black instead of red. Its general form is rather slender, its neck short, its head ovate, its bill shortish, nearly straight, broader than high at the base, compressed towards the end, the upper mandible with the tip slightly declinate, and without notch. The feet are slender, and of ordinary length; the tarsus compressed, with a long plate and three scutella anteriorly; the lateral toes equal; the claws arched, extremely compressed, laterally grooved, acute. The plumage is soft, blended, rather loose. The wings are of ordinary length; the first quill eleven-twelfths of an inch long, the second four-twelfths shorter than the third which is longest, but scarcely exceeding the fourth and fifth, the seventh and second equal. The tail is of moderate length, and nearly even.

The bill, tarsi, toes, and claws are black. The upper part of the head, the hind-neck, and the back are light greyish-blue; the rump and tail-coverts brownish-red; the tail light-red, except the two middle feathers, which are brown; the wing-coverts and quills are greyish-black, the latter edged with greyish-white, of which colour is a large portion of the outer webs of the secondaries, so that the cubital portion of the wing seems greyish-white when closed. A band across the lower

part of the forehead, the loral space, a narrow portion over the eye, the cheeks, the sides and fore part of the neck, with the breast and sides of the body, black, all the feathers margined with light grey when entire; the abdomen light grey, ultimately greyish-white; the lower tail-coverts reddish; the lower wing-coverts greyish-white.

Length to end of tail 6 inches; bill along the ridge $\frac{5}{12}$; wing from flexure $3\frac{4}{12}$; tail $2\frac{1}{2}$; tarsus 1; hind toe $\frac{3+}{12}$, its claw $\frac{5}{12}$; middle toe $\frac{6+}{12}$, its claw $\frac{3}{12}$.

Female.—The female has the upper parts greyish-brown, the lower light grey; the wings dusky, the secondaries broadly margined with yellowish-white; the rump reddish-brown, the tail brownish-red, of a duller tint than in the male. It can scarcely be distinguished from that of the preceding species.

Length to end of tail $5\frac{3}{4}$ inches.

Habits.—The above descriptions are taken from French specimens, as only a few individuals have been met with in this country. It is described by continental authors as being rare in the northern parts of Europe, but common in the southern, whence, however, it migrates in autumn, although a few individuals sometimes remain all winter. In its habits it resembles the Wheatear, preferring stony places, and bare pastures. It feeds on insects, larvæ, worms, and berries; nestles in the fissures of rocks, the holes of walls and buildings, or among stones, forming its nest of dry grass, and lining it with hair. The eggs are five or six, white and glossy.

The first British specimen was obtained at Kilburn, near London, in October 1829, and described by Mr Gould in the fifth volume of the Zoological Journal. In the summer of 1830, another was obtained near Bristol, and a third at Brighton. In January 1833, a fourth was procured at Teignmouth in Devonshire, and a fifth near Bristol in December 1835.

Young.—According to M. Temminck, the young are similar to the adult female until spring. The female is distinguished from the male by having the body of a paler grey, and the rump of a duller red.

Family VII. SYLVIÆ. Sylviinæ.

WARBLERS AND ALLIED SPECIES.

Taking the Blackcap, Garden Warbler, and Whitethroat as, along with other species, forming the genus Sylvia, and associating with it various groups of small Songsters belonging to both continents, and more or less related to the Turdinæ, Saxicolinæ, and Parinæ, I consider the family thus constituted to be sufficiently natural, although it might be difficult to distinguish as belonging to it several species placed on its limits. The European genera are *Sylvia*, *Philomela*, *Phyllopneuste*, *Calamoherpe*, *Sibilatrix*, *Regulus*, and several others ; and the American genera are *Sylvicola*, *Vermivora*, *Trichas*, *Regulus*, and some less natural groups. They may collectively be characterized as follows.

The Sylviinæ are birds of small size, none of them much exceeding the Nightingale. They are generally of a slender form, with the head rather large and ovate ; the bill short, straight, slender, tapering, rather broader than high at the base, compressed toward the end, its outlines very slightly convex, the mandibles sharp-edged, the notch of the upper obsolete or faint. The tarsus is of moderate length, slender, much compressed, distinctly scutellate before ; the toes moderate, slender, with arched, extremely compressed, acute claws. The plumage is soft and blended ; the wings of moderate length, more or less rounded, of eighteen quills ; the tail also of moderate length, and composed of twelve feathers, but rounded in various degrees, even, or emarginate. The nostrils are small, oblong, operculate ; the aperture of the ear large and elliptical. The palate is flat, the mandibles moderately concave ; the tongue is of moderate length, emarginate and papillate at the base, narrow, grooved above, horny, thin-edged, its point slit and

lacerated. The œsophagus is of moderate width, destitute of crop; the stomach elliptical, with the lateral muscles strong, and the epithelium thin, tough, and longitudinally rugous; the intestine short and rather wide; the cœca very small; the cloaca an ovate or oblong dilatation of the rectum.

The Sylvianæ are distinguished from the Saxicolinæ by being less robust, by having the bill narrower at the base, and the tarsi more slender; but the two groups blend into each other. They are active, lively, and generally gifted with the faculty of emitting agreeably modulated notes, several of them being among the most celebrated songsters. They feed on insects and larvæ, but not exclusively, for almost all the species are fond of juicy fruits, and many occasionally eat small seeds. They search for their food chiefly on trees and bushes, not often betaking themselves to the ground for that purpose. Most of them, owing to their being essentially insectivorous, are migratory, retreating southward as the cold increases in autumn, and returning northward in spring. They form an elaborate, neatly constructed, generally cup-shaped nest, lay from five to eight eggs, and usually rear two broods in the season. In migrating they do not generally proceed in flocks; the males precede the females several days; and their flight is rapid, protracted, and undulated.

All the species met with in Britain are migratory, excepting two, and most of them are generally distributed over the island.

SYNOPSIS OF THE BRITISH GENERA AND SPECIES.

GENUS I. PHILOMELA. NIGHTINGALE.

Bill of moderate length, straight, its outlines declinate and slightly convex; tarsus rather long, slender, compressed, with eight scutella, of which the upper are indistinct; toes of moderate length, slender; claws arched, extremely compressed, very acute; wings of moderate length, broad, the first quill scarcely a third of the length of the second, which equals the fifth, the

third longest, the secondaries rounded; tail rather long, straight, slightly rounded.

1. *Philomela Luscinia. Brake Nightingale.* Upper parts reddish-brown, the tail brownish-red; lower parts greyish-brown, the throat and belly whitish.

GENUS II. SYLVIA. WARBLER.

Bill rather short, slender, straight, its outlines slightly convex; tarsus rather short, much compressed, with seven distinct scutella; toes of moderate length, slender; claws rather stout, well arched, much compressed, laterally grooved, acute; wings of moderate length, broad, the first quill minute and pointed, the third longest, the second and fifth very little shorter, the former exceeding the latter, secondaries broadly rounded; tail of moderate length, straight, slightly emarginate.

1. *Sylvia Atricapilla. Black-capped Warbler.* Male with the head black. Female with the head reddish-brown.

2. *Sylvia hortensis. Garden Warbler.* Upper parts light greyish-brown, tinged with olive; wings and tail clove-brown, the margins of the quills and wing-coverts of the same colour as the back, the lateral tail-feathers like the rest.

3. *Sylvia cinerea. White-throated Warbler.* Upper parts light greyish-brown, the head brownish-grey; wings and tail brown, the secondaries and their coverts broadly edged with light brownish-red, the lateral tail-feathers in part greyish-white; lower parts greyish-white.

4. *Sylvia Curruca. White-breasted Warbler.* Upper parts light brownish-grey, the head grey, wings and tail dusky, the secondaries edged with light grey, the lateral tail-feathers nearly white; lower parts white.

GENUS III. PHYLLOPNEUSTE. WOOD-WREN.

Bill rather short, very slender, straight, its outlines almost straight; tarsus rather long, much compressed, with seven scutella, of which only the three lower are distinct; toes of moderate length, very slender, much compressed; claws rather

long, arched, extremely compressed, laterally grooved, acute, that of the hind toe curved in a semicircle; wings of moderate length, the first quill very small, the third longest, the secondaries abruptly rounded; tail rather long, straight, slightly emarginate.

1. *Phyllopneuste Sylvicola. Yellow Wood-wren.* Length about five inches; wings long, the second quill intermediate in length between the third and fourth; upper parts light yellowish-green; throat and sides of breast yellow; breast, abdomen, and lower tail-coverts white.

2. *Phyllopneuste Trochilus. Willow Wood-wren.* Length about five inches; wings of moderate length, the second quill shorter than the fifth; upper parts light greenish-brown, the feathers edged with yellowish-green; fore-neck and sides greyish-white, streaked with yellow, breast and abdomen white, lower tail-coverts yellowish.

3. *Phyllopneuste Hippolais. Brown Wood-wren, or Chiff-chaff.* Length about four inches and a half; wings rather short, the second quill of the same length as the seventh; upper parts greyish-brown, lower brownish-white, tinged with yellow.

GENUS IV. MELIZOPHILUS. FURZELING.

Bill short, slender, its upper outline convex; tarsus rather long, stoutish, compressed, with eight distinct scutella; toes of moderate length; claws rather long, arched, compressed, laterally grooved, acute; wings short, the fourth and fifth quills longest, the second shorter than the sixth; tail long, straight, graduated.

1. *Melizophilus provincialis. Provence Furzeling.* Upper parts greyish-black, fore part of neck and sides chestnut-brown, belly white.

GENUS V. CALAMOHERPE. REEDLING.

Bill of moderate length, straight, slender, its upper outline slightly convex, the lower straight; tarsus rather long, much compressed, with eight distinct scutella; toes of moderate

length; claws long, moderately arched, extremely compressed, laterally grooved, very acute; wings of moderate length, a little curved, the first quill a fifth of the length of the second, which is about the length of the third; tail rather long, straight, rounded.

1. *Calamoherpe phragmitis. Sedge Reedling.* Tail slightly rounded; feathers of the head brownish-black, edged with light brown, the back light olive-brown, spotted with dusky, the rump reddish-brown, the tail-coverts unspotted.

2. *Calamoherpe arundinacea. Marsh Reedling.* Tail considerably rounded; upper parts olive-brown, unspotted.

GENUS VI. SIBILATRIX. CHIRPER.

Bill of moderate length, straight, very slender, much compressed toward the end, its outlines nearly straight; tarsi rather long, extremely compressed; claws rather long, moderately arched, extremely compressed, very acute; wings of moderate length, a little curved, broad, the first quill about a fourth of the length of the second, which is a little shorter than the third, the secondaries rounded; tail rather long, and much graduated.

1. *Sibilatrix Locustella. Grasshopper Chirper.* Upper parts dull olive-brown, with oblong dusky spots, lower pale yellowish-brown, the fore-neck with a few dusky lines. Young yellowish-brown, spotted with dusky above, brownish-yellow beneath.

GENUS VI. REGULUS. KINGLET.

Bill shortish, straight, very slender, flattened at the base, compressed towards the end, acute, its outlines almost straight, the upper mandible destitute of notch; toes rather large; claws long, arched, acute, wings of ordinary length, concave, rounded; the first quill very small, the fourth and fifth longest, but scarcely exceeding the third; tail of moderate length, curved at the base, narrow, emarginate.

1. *Regulus auricapillus. Gold-crested Kinglet.* Top of the

head reddish-orange, with a band of lemon-yellow and another of black on each side, cheeks yellowish-grey. Young with the crown lemon-yellow.

2. *Regulus ignicapillus*. *Fire-crested Kinglet*. Top of the head reddish-orange, with a band of lemon-yellow and another of black on each side; cheeks yellowish-grey, with a dusky transverse streak, and another in the loral space.

Some authors have placed the Reguli in the Family of Parinæ, to the smaller species of which they certainly bear a considerable resemblance, not only in form but also in manners. But the transition from Phyllopneuste Hippolais to Regulus auricapillus is so slight that the former has by some been referred to the same genus as the latter, and in all the Pari the bill is much stronger than that of Regulus, which is formed on the same model as that of the other Sylvianæ. There are two generic names in the above synopsis to which objections may with propriety be made. *Melizophilus* evidently signifies a lover of music, yet the bird to which it applies does not appear to be very remarkable in this respect. It has been suggested that *Melissophilus* ought to be the name; but the bird is not known to be particularly fond of bees. For the Kinglets, a better name than Regulus, would be *Trochilus*, which is that applied to the common species by Aristotle; but that name has been given by Linnæus to the Humming-birds; ~~and if *Regulus* be contrary to rule, yet it is not so much so as *Rex*, *Tyrannus*, or *Pastor*, and may be allowed to remain.~~ — very improperly, as ancient Greek names, if used at all, ought to be applied to the species originally designated by them, certainly not to natives of a continent only recently made known.

Genus 1. PHILOMELA. NIGHTINGALE.

Bill of moderate length, straight, rather broader than high at the base, compressed toward the end: upper mandible with the dorsal outline slightly declinate and somewhat convex toward the end, the ridge narrow, the edges slightly overlapping, with a faint notch, close to the declinate, acute tip; lower mandible with the dorsal line ascending and slightly convex, the ridge rounded, the sides convex, the tip rather acute.

Both mandibles moderately concave internally, with a median prominent line; the palate flat, with two ridges, the posterior aperture of the nares oblongo-linear, margined with acute papillæ. Tongue slender, sagittate and papillate at the base, tapering to a slit and lacerate point. The mouth bedewed with a clammy fluid from two slender submaxillary glands. Œsophagus of moderate width, without dilatation; proventriculus oblong; stomach a gizzard of moderate power, roundish, compressed, its lateral muscles rather thin, the tendons large, the epithelium thin, tough, and longitudinally rugous; intestine short, of moderate width, with very small cylindrical cœca, and an oblong cloaca. Pl. XIII. Fig. 7.

Nostrils rather large, oblong, operculate. Eyes rather small; eyelids feathered, with a narrow, bare, crenate margin. External aperture of the ear large, roundish.

General form slender, the body ovate, the neck short; the head ovato-oblong; tarsi rather long, slender, compressed, with eight scutella, of which the upper are indistinct; toes slender, compressed; the first stout, the lateral equal. Claws of moderate length, arched, extremely compressed, laterally grooved, acute.

Plumage soft and blended, the feathers oblong; bristles very small. Wings of moderate length, broad, rounded; the first quill about a third of the length of the second, which is equal

to the fifth, the third longest, the fourth scarcely shorter. Tail rather long, straight, even, or slightly rounded, of twelve rather broad feathers.

The Nightingales differ from the Warblers chiefly in being of a more slender form, and in having the bill, tarsi, and tail more elongated. They are very intimately allied to the Turdinæ by means of some of the smaller Thrushes, especially Turdus Wilsoni and Turdus minor, which in form and colour, with the exception of the spots on the breast, are very similar to the common Nightingale. They are insectivorous, migratory in temperate and cold countries, plainly coloured, and remarkable for their song, which excels that of the other Sylviinæ. One species occurs in England, but has not hitherto been with certainty observed in Scotland.

Linn.

2. PHILOMELA LUSCINIA. THE BRAKE NIGHTINGALE.



Fig. 169.

Motacilla Luscinia. Linn. Syst. Nat. I. 328.
Sylvia Luscinia. Lath. Ind. Orn. II. 506.
Nightingale. Mont. Orn. Dict.
Bec-fin. Rossignol. Sylvia Luscinia. Temm. Man. d'Orn. I. 195.
Nightingale. Philomela Luscinia. Selb. Illustr. I. 206.
Sylvia Luscinia. Nightingale. Jen. Brit. Vert. An. 107.

The upper parts reddish-brown, the tail brownish-red; the lower parts pale greyish-brown, the throat and belly whitish.

Male.—The Nightingale, unrivalled as it may be as to its vocal powers, is one of the most homely of our native birds in its attire. In size it is somewhat larger than the Blackcapped and Garden Warblers, which it greatly resembles in form, although its bill and tarsi are more elongated. The former organ is of moderate length, straight, rather broader than high at the base, compressed toward the end; the upper mandible with the dorsal outline declinate and slightly convex, the sides sloping and convex, the ridge narrow, the edges sharp and slightly overlapping, the tip declinate, acute, with a faint notch; the lower mandible with the angle of moderate length and rather narrow, the dorsal line ascending and straight, the ridge rounded, the sides convex, the edges a little inflected, the tip rather

acute; the gape-line nearly straight. Both mandibles are concave internally, with a slightly prominent median line. The palate flat, the posterior aperture of the nares oblongo-linear, papillate on the edges. The tongue is half an inch long, slender, sagittate at the base, with two strong papillæ and intermediate acicular points, slightly concave above, the point slit and bristly. The œsophagus, Pl. XIII, Fig. 7, is two inches and a quarter long, its average diameter two twelfths and a half. The stomach is six twelfths and a half long, elliptical, its lateral muscles strong, its cuticular lining thin and tough, with three prominent transverse and several longitudinal rugæ on each side. The intestine is seven inches long, the cœca cylindrical and one-twelfth in length. The trachea is an inch and eight-twelfths in length, with sixty-five rings, its muscles as in the Thrushes and Crows.

The whole form is slender; the head ovate and of moderate size; the aperture of the eyes two-twelfths in diameter, that of the ears three-twelfths; the nostrils large, oblong. The tarsi are rather long, slender, compressed, with eight scutella, of which the upper are blended; the toes slender, compressed; the first stout, rather broad at the base, with eight scutella, the second with ten, the third eleven, the fourth ten. The claws are of moderate length, arched, extremely compressed, laterally grooved, and very acute.

The plumage is soft and blended; the feathers oblong, with loose filaments, and a very slender plumule; the bristle-feathers at the base of the bill very small. The wings are of moderate length, broad, with eighteen quills; the first scarcely a third of the length of the second, which is equal in length to the fifth, the third longest, and the fourth almost as long; the secondaries rounded and rather slender. The tail is straight, rather long, even, the feathers rather broad.

The upper mandible is reddish-brown, the lower pale yellowish, its tip brown; the iris is hazel; the feet and claws pale greyish-brown. The general colour of the upper parts is reddish-brown, redder on the head and rump, the tail of a brighter tint; the inner webs of the quills dusky brown. The feathers of the eyelids are brownish-white; the ear-coverts dull

brownish-red. The throat, lower part of the breast, and abdomen, are greyish-white; the lower neck anteriorly and the sides pale greyish-brown; the lower tail-coverts dull yellowish-white.

Length to end of tail $6\frac{9}{12}$ inches; extent of wings $10\frac{1}{2}$; bill along the ridge $\frac{5}{12}$, along the edge of lower mandible $\frac{8\frac{1}{2}}{12}$; wing from flexure $3\frac{4}{12}$; tail $2\frac{8}{12}$; tarsus 1; hind toe $\frac{4\frac{1}{2}}{12}$, its claw $\frac{4}{12}$; second toe $\frac{4\frac{3}{4}}{12}$, its claw $\frac{1\frac{3}{4}}{12}$; third toe $\frac{7}{12}$, its claw $\frac{3}{12}$; fourth toe $\frac{5}{12}$, its claw $\frac{2}{12}$.

Female.—The female is similar to the male in colour, and nearly of the same size.

Length to end of tail $6\frac{1}{2}$ inches; extent of wings 10.

Variations.—Individuals vary considerably in the tint of the upper parts, which are more or less tinged with red or grey. The feathers sometimes become white, wholly or partially.

Habits.—So much has been said of the Nightingale that it would be difficult for me to bring forward any thing new as to its manners, without submitting them to a more careful observation than my opportunities have hitherto afforded me. I have therefore applied to a friend well known to all my readers, as an original and successful describer of the habits of birds.

"The blasts of winter have passed away. The humble violet hangs on its delicate stem, embedded, as it were, in the midst of its deep green foliage. The sweet odour of the purple floweret diffused through the bland air proves that the delightful days of spring have returned. Its companion the pale primrose spreads all over the mossy bank; there the virginal eglantine prepares to open its snowy blossoms; golden butter-cups and daisies bright cover the green pastures; and the groves send forth from amid their yet tender foliage tufts of flowers, some yet budding, like the laburnum, others bursting into beauty, like the purple lilac, and the delicate cream-coloured elder. Peach blossoms brightly blushing glow amid the varied hues of the orchard, whose clusters of nectared petals have invited the humble bee to trim her wings anew, to ramble hither

and thither, and with constant and most industrious care to reap the delicious harvest intended for her sustenance during the gloomy months of winter.

" How often at such a season as I have here attempted to describe, have I left my downy couch, awakened, not by the rays of the orb of day, but by an intuitive sensation, far more pleasing than that of indolent repose, and sallied forth to watch the eventful moments when nature's rest was for a time interrupted, and she arose fresh, blooming, and full of renovated vigour! How oft, I repeat, have I betaken myself to the fields and groves before the objects around me were clearly discernible, to watch the first notes of the vernal visitors of the feathered tribe, which from their sojourn in more sunny lands have returned to the abode of their youth! Then the Winter Fauvette would be heard to sing its humble lay, the little Wren would pour forth its lively chirpings, the Chaffinches challenged each other on the sprays, the loud notes of the Blackbird came on the ear from afar, while perhaps overhead, amid the branches of that sturdy elm, the Song Thrush, cousin to the Mocking Bird, poured forth his unpremeditated notes, so sonorous, so varied, and so mellow that, methinks, while listening to the lay, the rogue has actually practised the gamut of the Louisiana songster.

" In the midst of a thicket I now see a solitary bird, humble in its attire, and of most modest mien, peeping at me with a caution so uncommon, and yet so inviting, that I feel tempted to seek its acquaintance. With care I gradually approach the feathered stranger. Its form is somewhat elongated, yet not incompact; its eyes are large, and of peculiar mildness; it stands rather high on a pair of light flesh-coloured, and as it were, transparent legs; its wings, which are of moderate length, droop and seem at intervals to tremble; and as it moves from one twig to another, I see that it hops or leaps, and does not walk step by step like many other birds. Its colour is a dull brownish-olive, but the hind part of the back and the tail are of a richer tint, though corresponding with the general hue. At this moment it flies lightly to the ground, hops a few steps, picks up a grub, and then returns to its

former station. Can it be a Thrush? surely, if it is not, it ought to be. But I will watch your ways; nay, I will note down every one of your actions, mark the situation of your nest, its form and component parts, your eggs and your brood, and all about you and your mate, who methinks has not yet reached this lovely and secluded spot; so that perhaps at some future time I may present you to some friend who feels as much for and toward you as I myself do at this moment.

"Such may have been my thoughts in those bright days of my youth. If they were, they are realized; for I now present my history of the Nightingale to such a friend. That friend, sweet bird! I might say, has a faithful resemblance of your handsome person, nay, such a perfect portrait, that could you look at it, it would cause within your gentle breast, especially at this season, quite an angry commotion, finding its truth so remarkable that you might feel disposed to attack it as a rival, and chase it far away from your favourite thicket. This friend however I knew not in those sunny days.

"When I was yet quite a lad, my father spoke to me of the songs of birds, both of Europe and of other countries, and frequently would endeavour to give me some idea of the affinities of different species. 'The Sky-Lark, if not so abundant,' he said, 'would be thought a most charming songster; the Goldfinch, the Linnet, the Blackbird, the Song Thrush, and many others are all pleasantly musical; but the Nightingale is amongst our birds as much superior as the Mocking Bird of your country is to every other songster there: and, although I am fully aware that America possesses many song birds of considerable powers, nay perhaps, on the whole, more so than Europe, I have never been able to convince either my countrymen or Englishmen of this truth. Of all this however you must judge for yourself. Go early and late to the woods, listen with attention to the songs of the birds; and be assured that while you will find them daily becoming more and more pleasing, you will be enabled to establish the truth of these matters, to which, I am sorry to say, few persons pay much attention.'

"Such lessons, Reader, have never been forgotten by me,

With all the anxious enthusiasm of youth I resolved to judge for myself of the powers of song in birds, and to begin by studying first those of the Nightingale, the very bird which had attracted my regard in its plain brown garb, and most modest mien. The part of France in which I then was, proved, as I thought, remarkably well adapted for this purpose. Rambling occasionally between Rheims and the capital, during the genial season at which this distinguished songster appears there in considerable numbers, and keeping away from the main roads, I would seek all such byeways as were deeply cut beneath the surface of the country around, and especially such as were well supplied with tall and well-set hedge-rows, in the neighbourhood of orchards, and almost close to the cottages of the humble tillers of the soil. In solitudes like these I was sure to meet with Philomel. Now perched scarcely ten or fifteen feet from the ground, on some branch of a thicket, I have watched it on its first appearance, in the beginning of April, as for several days the males which I observed exhibited an appearance of lassitude and melancholy almost painful to me. Silent, still, and in a position almost erect, the Nightingale would stand, as if in a state of stupefaction, for more than an hour at a time, or until, pricked by hunger, it would fly to the ground, hop over it in a direct line, and meeting with an insect, would seize it precisely in the manner of a Thrush. By this, Reader, I would have you understand that after having spied its prey, the bird stopped for an instant, quickly bent its legs, lowered its head without changing as it were the general position of its body, then took up the insect, and swallowed it at once, looked around, and flew to the very twig which it had a few moments previously left. On all such occasions, during those few days of lassitude, and indeed at almost all other periods of the stay of this species in France, the least attentive observer will see that on its alighting on a branch to rest, a certain tremulous action of the wings takes place, whether those members droop or are in their ordinary position.

" After three or four days the birds evidently became more circumspect or shy, while a corresponding improvement took place in their aspect. Their motions, though not quick at any

time, always seemed to me to partake of more elegance, as if produced by the knowledge that the arrival of their partners, and the season of song and love were at hand. An attentiveness to the notes of all the passing birds about them, I thought, was very perceptible; and when it propitiously happened that one of them was produced by a female Nightingale, the males would simultaneously fly with speed to the spot, and at once seek for the fair one, which, by the way, I should say arrived singly, and in the same manner as the male had done some days previously. I moreover discovered that this species travels altogether under night, and I believe singly, because, on seeing these birds alight about day-break, I never observed more than one at a time, although on several occasions I have seen one, two, or even three, come towards the ground within the lapse of half an hour or so, one coming after the other at the distance, as I should conceive, of from eight to sixteen miles. I am also pretty well satisfied that in this species, as in many others, the older males and older females reach their destinations first, after which the others, according to their respective strength of body.

"The arrival of the Nightingale in the portions of the country of which I speak, varies by a full fortnight, according to the temperature of the season, as I have observed some of them on the 20th of March, and in other seasons not before the 5th or 10th of April.

"Many of my readers may think it strange that I should say to them that I never heard a Nightingale sing on its arrival, or before it was on the eve of being mated, when the first sight of the female appears to bring forth its musical powers. On the other hand, I have heard these birds in full song until within a few days of their departure about the middle of August. But this may possibly have been overlooked by students of nature, who, having heard the song of the Nightingale at a very early period, were not aware that at the same moment the bird had already formed a nest, and its mate was snugly incubating.

"About a week after the arrival of the female birds, the male Nightingales first seen are mated, and a spot has been chosen for the nest. The situations of their choice are generally in

the interior of close thickets, but not unfrequently also at the roots of the thick sets of hedge-rows. I never saw one either in a bush, or on a tree of any sort. The colour of the materials employed in the composition of the nest, and even that of the eggs, are in accordance with the dull reddish-brown garb of the bird itself. The whole of this fabric may be said to be of a rather rude construction, it being large, loosely put together externally, and rather scantily lined. I have no doubt that, like some of the smaller Thrushes, as well as several of the larger Warblers, the Nightingale to some extent scratches a seat for the basis of its tenement. The outer layer is usually composed of the dried leaves of various trees of the previous season, extending at times in a loose manner to the distance of several inches from the proper nest. The latter is cup-shaped, with its cavity about four inches in breadth, and nearly as much in depth, formed of dry fibrous roots of small size, now and then interwoven with a few horse hairs. The eggs are from four to six, rather large for the bird, three quarters of an inch in length, seven twelfths in breadth, and of a pale brownish colour. The parent birds incubate alternately, although the female spends more time on the eggs than her mate.

"Young Nightingales, like most young birds of their tribe, are at first fed with macerated substances, for eight or ten days, after which they receive small larvæ, worms, and insects. On two or three occasions, I have seen the young, when yet not much more than half-fledged, leave the nest, and hop about its vicinity during the day, but return towards evening and huddle together, their mother covering them with due care. So similar is their colour to that of the ground at this period, that it is almost impossible to discover them, until the parents, through their anxiety for their safety, are seen to hop round them, and thus point them out to the searcher. At this early age I have observed that they exhibited a great desire for small insects, and even at times seized a butterfly extremely common in France, especially in the neighbourhood of gardens and orchards, to which the Nightingale not unfrequently resorts for food.

"During the summer, and towards the period of its de-

parture, this species, Thrush-like, feeds on several sorts of small and juicy berries; those which tarry latest especially, for I have seen Nightingales in the neighbourhood of Paris as late as the 15th of September, or about a month later than the period chosen by the young birds to migrate toward their winter quarters.

" In its general disposition, the Nightingale might be said to be of a quiet nature; but during the love season I have oftentimes seen two males contending not only for a female, but also for the exclusive right to a certain district, which they were both equally desirous of appropriating to themselves. Their warfare however produces no bloodshed. Indeed, like loud-talkers, who never come to blows, they usually settle the affair without pecks, but with much pomposity of action, and he who surpasses his antagonist in this, is sure to maintain his ground, while the other sneaks away, humbled and crest-fallen.

" The flight of the Nightingale is smooth, swift, generally even, but of short extent, after it has once settled for the season. Unlike true Warblers, Vireos, or Flycatchers, it never launches forth on wing after its prey, but frequently, as is the habit of both Thrushes and at times also Vireos, it is wont to move along the branches, peep under the leaves, and snatch the insects suited to its appetite.

" The young of the Nightingale bear a considerable resemblance to those of the Garden Fauvette, and I have seen the latter not unfrequently sold in the markets for Nightingales. But the person who has any knowledge of the differences that exist between the two species, will at once see, even at this early age, that the bill of the true bird is much larger, and that its tail, however short it may yet be, shews a dull red tint never seen on that of the Fauvette. Again, when the Nightingale has become of age, the female is often palmed upon the unknowing as a male, and I have often been amused by seeing how carefully the vender of the female bird had darkened her prison with a green cloth, under the pretence that this species seldom sings unless in darkness. Now, Reader, it has been my fancy to keep many Nightingales in my youth, and although I never employed any trappings about their cages, they never

failed to sing both at early and at late hours, but never at night, unless the moon was near its full, the weather calm, and the sky serene. Indeed it has never been my fortune to hear one of these birds sing at night, that is, at midsummer, from eleven to one o'clock, or at an earlier time from nine to three, for they always cease in an hour or so after sunset.

" It is probably the opinion of every person acquainted with the songs of birds, that the Nightingale surpasses every other songster in this country. Be it so; but with all due deference, allow me, Reader, to make a few observations on this subject. Before I proceed one line farther, will you have the goodness to tell me whether you have ever heard a Nightingale tutored to sing in perfect good tune " Over the water to Charlie," or any other such regular air? " No," being of course your answer, I offer you my thanks; and now you have most positively acknowledged that the Nightingale, with all its natural powers, is not equal to the Bullfinch, which naturally has no song at all. The Sky-Lark I am assured will sing eight or ten minutes at a time without the least intermission, and, although the voice of that bird is not so sweet as that of the Woodland Philomel, its song is very methodical, and of great compass. Then the pretty Blackcap, what think you of it? Is its song not varied, gay, sweet, and mellow, as much so as that of the Nightingale? And what say you to the notes of the Goldfinch, the Crimson-breasted Linnet, and above all, that charming cherub the Wood Lark? A friend of mine, yet a resident of York, once made me a present of two males of this species. Sweet delightful creatures! how oft they chased away from me moments of despondency! methinks I am still listening to their most agreeable song, which indeed not unfrequently called the attention of my neighbours in Great Russel Street, where I then resided.

" I am far, Reader, from being at all partial to the song of any particular bird; for, in fact, I love to listen to them all, and am even fond of the hoarse croak of the Cormorant. You may then well understand how delighted I feel when I listen to the lively notes of any of the sweet singers which I have mentioned.

" When I was a lad, and in France, I not only studied the habits of many of the birds of that country, or those which resort to it during the season of reproduction, but made constant inquiries respecting them among the country people. One day, after partaking of a delicious breakfast of buck-wheat cakes and sweet milk, under the roof of a ' paysan,' I chanced to ask him what he knew of the ' Rossignol.' ' Ah ! Monsieur !' replied the goodman, ' c'est un oiseau qui chante joliment.' I went on and asked him, ' pray can you tell me what it says when it sings ?' My host scratched his ear, according to the custom of men of his rank, and after a while answered, ' Oui, Monsieur.' If I recollect aright, I rubbed my hands, smiled, and desired him to describe it to me. He rose, straightened himself, coughed a few times, and in a very decent musical tone sung out the following ditty.



" I thought this quite original, and even now would venture to say that you have never, Reader, seen it in print before. It is however in point of fact a most true description of the expressions, if I may so speak, of the nightingale's notes, and marks the compass of that bird's voice, the emphasis placed on the different notes, and the terminating cadences, in what I would call a happy manner.

" There exists a singular arrangement of nature relative to

singing birds of all sorts, of which never having read, I may here make mention. It is this :—I have never met with birds truly migratory, by which I mean birds that visit countries from which they retire as soon as their young are able to travel, that ever sing in confinement during winter in the countries to which they had migrated to breed, though they sing in the country to which they return to spend the winter. Of these the Nightingale is one, for it does not exhibit its vocal powers in confinement until after the spring moult, either in France or in England ; but you no doubt have heard on mild winter days the Song Thrush, the Linnet, or the Goldfinch, when the cages of these birds have been placed in the sunshine, and out of doors, pour forth their songs, and not unfrequently some brief strains are emitted by the Sky-Lark, the Winter Fauvette, and that little musical box the Kitty-Wren.

" Almost all the Nightingales that I have known whilst kept in confinement, have died at an early age, through the mismanagement of their owners, who, thinking that this species, as it comes from warmer climates, ought to be kept at a very high artificial temperature, especially during winter, have thus overheated it. I have ascertained from experience that a room kept at the moderate heat of 58° to 60° Fahr. is best suited to their constitution. Again, the general custom of keeping these birds in cages covered with trappings of various textures, is absurd, inasmuch as, in no portions of the countries in which the Nightingale is found, is it known to conceal or hide itself as it were, from the genuine and only pleasing freedom of the air and the rays of the sun. Indeed, Reader, whenever I have seen this sweet bird so confined, I have thought of the melancholy lives led by pets of another sort, when confined, I would say almost tortured, in rooms called nurseries, where they become heartily tired of all the playthings presented to them, and pant for the delight of gambolling over the green grass plat in view of their glazed prisons. I have known bird-sellers wicked enough to put out the eyes of the Nightingales taken from the nest, under the pretence that they sing best when blind. This is a most barbarous practice, and certainly ought to be discountenanced by amateurs, who can easily put it down, by never purchasing a bird so horribly maimed.

"Perhaps, Reader, you will allow me to present you with some observations on the feeding of birds in confinement, and applicable to the Nightingale as well as to others. If you are not an observer of nature, read books, and in some of them perhaps you will find what I am about to relate to you; yet, I would rather advise you to go to the woods and fields, and see for yourself. When there, seated or standing, you will soon discover if the food of a particular species is simple or complex, whether it is composed of seeds only or of flesh in the form of worms, larvæ, snails, &c. and berries or other ripe fruit. Then as to the Nightingale, you will soon perceive that although it is fond of fruits, it never sucks the eggs of birds, and that to feed it on hard-boiled yolk of eggs is quite wrong, for such food induces constipation, soon renders the bird dull in spirits, and ultimately extinguishes its musical powers. No, if you cannot procure insects and fresh fruits for it during winter, do so in the summer, and save them by threading them with a needle, and drying them in the sunshine; and, when the cold weather has returned dip some of them daily for a few minutes in tepid water, when they will swell, recover a part of their colours, and will be sought for with avidity by your nightingale. Worms cannot well be saved in this manner; but grasshoppers, crickets, and a variety of coleopterous insects, may. Instead of worms, furnish your pet with something resembling them. Cut slender slices of raw flesh, beef or mutton, roll them between your fingers, throw them scantily into the cage, and judge for yourself of the pleasure with which your winged captive devours these welcome bits. Give it the best of dried figs too, or raisins or prunes; sand its prison well and often, have a good-sized bathing-basin half-filled with cold water; talk to your bird as you would to a friend in captivity, and, depend upon it, the captive will repay you amply, by its sweet and melodious song, for all your not unpleasing cares."

To this original history by Mr Audubon, may be added a few remarks.—The Nightingale, which in summer is spread over the greater part of the continent, extending its migrations to Sweden and the temperate parts of Russia, arrives in the south of England about the middle of April, or a few days later

should the weather be severe, the females, according to various observers, coming a week or ten days after the males. Individuals settle in the southern counties, including part of Devonshire, in the eastern and midland districts, and as far north as the vicinity of York and Carlisle; but none are to be seen in Cornwall, Wales, or the north-western parts of England, and the migration of this species does not extend into Scotland, although on the continent it proceeds much farther north. Several individuals, however, have alleged that the Nightingale has been heard north of the Tweed. Thus, in a letter with which I am favoured by Mr Robert D. Duncan, is the following notice respecting it:—"The Nightingales arrived in Calder Wood, in West Lothian, in the early part of the summer of 1826. I cannot remember so far back, but creditable eye and ear witnesses, on whose testimony implicit reliance may be placed, gave me the information. Before and about midnight, while the full moon shone bright and clear, the superior warble of the male was first heard, which soon attracted a number of admiring individuals, who hastened to the spot, supposing it at first to be a scape-canary. The owner of the wood was extremely anxious to preserve them, thinking perhaps that they might propagate; but with all his care and attention, some malicious and selfish individuals attempted to take them with bird-lime, but failing in their efforts, they afterwards shot the male, upon which the female left the wood." It leaves its summer residence from the middle of September to the end of that month, and betakes itself to the countries westward of the Mediterranean.

Its favourite haunts in this country are woods, copses, and hedgerows, especially in places where the soil is moist; and in the neighbourhood of London it is not unfrequently found in the numerous market-gardens from which that vast city is supplied with vegetables. But so hideling are its habits that one seldom obtains a glimpse of it, and then its homely attire is little apt to attract notice. "Its food," according to Sweet, "consists entirely of insects of various sorts, but it prefers the eggs of ants to any other; it is also very fond of the young larvæ of Wasps or Hornets."

For some days after the first arrival of the Nightingales, the bird-catchers are on the alert, as it has been found that the males which are caught before they have mated, thrive better in captivity than those obtained after the females have made their appearance. If the weather be not unfavourable, the males begin to sing presently after their selection of a locality. They continue in full song, however, only until the young are hatched; but it has been remarked that, when the female has been killed, or the young removed, the male will commence his song again, and continue it until he has obtained another mate. Although the sweet strains of the Nightingale may be heard at intervals through the day, they excite more admiration when listened to in the quiet evenings, during which they are protracted to a later hour than those of any other songster, excepting the Sedge Warbler. Most authors profess to be in raptures when describing the song of this far-famed bird; but some would detract from its alleged merits, and consider it in some respects inferior to the "Mavis and Merle." My acquaintance with this species, however, is so slight, and my capability of appreciating musical talent so feeble, that I am obliged to refer to the report on this subject of a gentleman who seems to me to possess the qualifications wanting in myself. Mr Wood, in his "British Song Birds," gives the following account of it. "The strains are loud, rich, mellow, silvery, and clear, and so far from being a *miserabile carmen*, as sung by Virgil and other classic poets, I know few songs which are its equal in sprightliness and vivacity, with the exception, however, of one part, consisting of three or four lengthened notes, beginning very *piano*, and gradually rising to *crescendo* and *forte*, which are certainly of a peculiarly melancholy character. The song of this bird does not equal that of the Garden Ouzel in mellowness, nor that of the Garden Thrush in loudness, but it certainly excels all others as a whole, at least all other British birds." Isaac Walton's eulogy is more flattering:—"The Nightingale, another of my airy creatures, breathes such sweet music out of her little instrumental throat, that it might make mankind to think that miracles are not ceased. He that at midnight, when the very

labourer sleeps securely, should hear, as I have very often, the clear airs, the sweet descants, the natural rising and falling, the doubling and redoubling of her voice, might well be lifted above earth and say, 'Lord, what music hast thou provided for the Saints in Heaven, when thou affordest bad men such music on earth?'"

After the period at which the young are hatched, the Nightingale is seldom heard, and its song is exchanged for a low hoarse note, supposed to be an expression of anxiety for its young. Its nest, which I have never seen *in situ*, is said to be frequently placed on the ground, but sometimes in shrubs; and according to Montagu is "made of dry leaves, generally of the oak, and lined with dry grass." One now before me is composed of slips of the inner bark of willow, mixed with leaves of the lime and elm, and lined with fibrous roots, grass, and a few hairs; its external diameter five inches and a half, its internal three, its depth three and a half. The eggs, which are four or five in number, are of a regular oval form, somewhat pointed, nine and a half twelfths of an inch in length, seven twelfths in their greatest breadth, glossy, and of a uniform pale olive brown, often, however, tinged with greyish-blue, especially at the small end. Another nest, from Oxfordshire, consists chiefly of decayed leaves of the oak, maple, and other trees, rudely disposed, and kept together with a few flat straws, the lining being of fine grasses, delicate fibrous roots, and fragments of decayed leaves.

YOUNG.—The young when fledged differ from the adult only in having the feathers of the upper parts tipped with reddish-yellow, and those on the lower margined with dusky.

Lath.

Genus II. SYLVIA. WARBLER.

Bill rather short, slender, a little broader than high at the base, slightly compressed toward the end; upper mandible with the dorsal outline straight and declinate, at the end convex, the ridge narrow and rather distinct, the nasal depression large, the sides convex and declinate, the edges sharp and overlapping, with a rather distinct notch close to the tip, which is declinate, very narrow and rounded; lower mandible with the angle of moderate length, rather narrow and rounded, the dorsal outline very slightly convex, the back broad and flattened at the base, convex towards the end, the sides convex and sloping outwards, the edges sharp, the tip broader than that of the upper; the gape-line straight.

The upper mandible within is concave, with a median prominent line, the palate flat, with two ridges, the posterior aperture of the nares oblongo-linear, margined with minute papillæ. The lower mandible more concave, with a median prominent line. The tongue slender, sagittate, and finely papillate at the base, tapering to a slit and lacerate point. The mouth bedewed with a clammy fluid. Œsophagus of moderate width, without crop; proventriculus oblong; stomach a gizzard of moderate power, roundish, compressed, its lateral muscles rather thin, the tendons large, the epithelium thin, tough, longitudinally rugous; the intestine short, of moderate width; the cœca very small and cylindrical, the cloaca oblong. Pl. XIII. Fig. 8.

Nostrils oblong, narrow, operculate. Eyes rather small; eyelids feathered, with a narrow bare crenate margin. External aperture of the ear large, roundish.

General form slender, the body ovate, the neck short; the head ovate; the feet slender; tarsus rather short, much compressed, with eight distinct anterior scutella; toes of moderate length, much compressed; the first rather large, broad at the

base, and flattened beneath, the lateral equal, the third and fourth united at the base. Claws rather stout, well arched, much compressed, laterally grooved, acute.

Plumage soft and blended, the feathers ovate, rounded. Wings of moderate length, with eighteen quills, of which the first is minute and pointed, the third longest, the second and fourth very little shorter; the primaries rounded, the secondaries broadly rounded. Tail of moderate length, straight, slightly emarginate, of twelve rather weak rounded feathers.

The Warblers are small, generally delicate, active, and lively birds, which frequent woods, thickets, hedges, and gardens, feed on insects and small fruits, and amply repay the slight depredations which they commit, by their pleasantly modulated song. Four species occur in Britain, all migratory, arriving in the beginning of summer and departing after the middle of September. This genus differs little from the preceding or the following; the tarsi, however, are shorter and the bill weaker than in ~~Luscinia~~; and the latter organ is wider, and less compressed toward the end than in Phyllopneuste.

Philomela,

1. SYLVIA ATRICAPILLA. THE ~~BLACK-CAPPED WARBLER, OR~~ BLACKCAP *Warbler.*

MOCK-NIGHTINGALE.



FIG. 170.

Motacilla Atricapilla. Linn. Syst. Nat. I. 332.
Sylvia Atricapilla. Lath. Ind. Orn. II. 508.
Blackcap. Mont. Orn. Dict.
Bec-fin a tête noire. Sylvia Atricapilla. Temm. Man. d'Orn. I. 201.
Blackcap. Sylvia Atricapilla. Selb. Illustr. I. 209.
Sylvia Atricapilla. Black-cap Warbler. Jen. Brit. Vert. An. 108.

Male with the upper parts light yellowish-grey, the head black, the lower parts ash-grey, paler behind, and tinged with yellow; wings and tail greyish-brown. Female similar, but with the head reddish-brown.

MALE.—The Blackcapped Warbler, although not remarkable for beauty of colouring, is elegantly formed, and distinguished above all our native species of its genus, excepting the Garden Warbler, by the excellence of its sweetly modulated song. It is very similar in size and colour to the next species, but is easily distinguished from any other British bird of this family, the male having the top of the head black, and the female light-brown. The bill is rather short, broader than high at

the base, compressed towards the end, and sharp; the upper mandible with the dorsal outline nearly straight and sloping, until near the tip, which is a little declinate and narrow, the ridge rather distinct, the sides convex, the edges sharp and slightly overlapping, with a faint notch; the lower mandible with the angle of moderate length, rather narrow and rounded, the dorsal line ascending, and very slightly convex, the sides sloping outwards and convex, the edges sharp and direct; the gape-line nearly straight. Both mandibles are concave internally, with a slightly prominent median line. The palate is flat, the posterior aperture of the nares oblongo-linear, papillate on the edges. The aperture of the glottis also papillate, and with numerous papillæ behind. The tongue is emarginate and serrulate at the base, with a large conical papilla at each angle, narrow, horny, grooved above, thin-edged, terminated by two lacerated acute points; its length three-twelfths and three-fourths. The œsophagus is two inches and a quarter long, its average diameter two-twelfths and a half. The stomach is elliptical, nine-twelfths long when distended, its lateral muscles large, the lower very thin, its cuticular lining thin and rugous. The intestine is seven inches long, its diameter at the upper part two and a half twelfths, at the cœca one and a half; the cœca a twelfth and a half long, and one inch from the extremity. Plate XIII. Fig. 8.

The head is oblong, and of moderate size; the whole form slender; the aperture of the eyes two-twelfths in diameter; that of the ear two and three-fourths; the nostrils elliptical, and a twelfth and a half long. The feet are of ordinary length, slender; the tarsus compressed, acute behind, anteriorly with eight distinct scutella; the toes slender, compressed; the hind-toe broad and flat at the base, with eight scutella above, the second with ten, the third with eleven, the fourth with ten scutella. The claws are of moderate length, arched, extremely compressed, laterally grooved, very acute.

The plumage is soft and blended; the feathers oblong, with loose filaments, and a very slender plumule. Those at the base of the bill bristle-tipped; the bristle-feathers scarcely distinguishable. The wings are of moderate length, broad,

and rounded; the quills eighteen; the primaries rounded, excepting the first, which is very small and narrow, scarcely a third of the length of the second, which is shorter than the fifth, the third longest, and the fourth almost as long; the secondaries rounded and rather slender. The tail straight, slightly rounded, rather long, its feathers rather narrow and rounded.

The bill is brownish-black above, paler beneath, its edges yellowish-grey, the lower mandible greyish-blue; the inside of the mouth is bluish-grey; the iris brown. The feet greyish-blue, the toes tinged with green beneath, the claws wood-brown. The upper part of the head is black, the cheeks and hind part and sides of the neck ash-grey; the rest of the upper parts light yellowish-grey; the quills greyish-brown, their outer edges pale yellowish-brown; the tail similar. The lower parts are ash-grey, fading posteriorly into pale yellowish-grey.

Length to end of tail $6\frac{1}{12}$ inches; extent of wings $9\frac{1}{4}$; bill along the ridge $\frac{5}{12}$, along the edge of lower mandible $\frac{8}{12}$; wing from flexure $3\frac{1}{12}$; tail $2\frac{1}{2}$; tarsus $\frac{9\frac{3}{4}}{12}$; hind-toe $\frac{4}{12}$, its claw $\frac{3\frac{1}{4}}{12}$; second toe $\frac{4\frac{1}{2}}{12}$; its claw $\frac{1\frac{1}{4}}{12}$; third toe $\frac{6}{12}$, its claw $\frac{2\frac{3}{4}}{12}$; fourth toe $\frac{4\frac{3}{4}}{12}$, its claw $\frac{1\frac{1}{2}}{12}$.

Female.—The female scarcely differs from the male in size, and is similar in colour, only that the upper part of the head is light reddish-brown.

Length to end of tail $6\frac{2}{12}$ inches; extent of wings $9\frac{1}{4}$.

Habits.—My first acquaintance with the Blackcap took place on the 19th May 1831, when, having accompanied two friends to the garden of Dean House, near Edinburgh, in quest of young Rooks, I heard a delightful warble among the bushes. On asking the gardener if he thought it was that of a Robin, he said he thought it was a Mavis. I conceived it to be different from either, and my friends presently went in search of the bird, which was shot by one of them, Mr Houston. Since then I have had opportunities of observing the habits of the species in other parts of the country. Its song is in fact very similar in some respects to those of both the Robin and Thrush,

but softer, more mellow, and more modulated than that of the latter, and of more compass than that of the former.

This species is shy and not easily discovered, as it lurks among the bushes, seldom appearing in an open place. Its favourite haunts are gardens, orchards, and thickets, where it feeds on insects and larvæ, as well as currants, strawberries, rasps, and cherries. If pursued, it flits from bush to bush, but seldom takes a long flight; and although extremely lively and agile, it has not the petulance of the White-throat, nor the pertness of the Robin, but seeks to hide itself from the observation of man, and is in all respects a solitary bird, more than two adult individuals being seldom or never seen together. It arrives in Scotland about the beginning of May, but in the south of England early in April, and is found pretty extensively distributed in the cultivated parts. Its song is continued from the period of its arrival until the end of June, and, if description could convey an adequate idea of its character, is worthy of the pen of a Wilson or an Audubon. And here it may be not amiss to present the opinions of some of our best observers respecting it.

Montagu merely states that "it delights us with its charming melodious song, which is very little inferior to that of the Nightingale, except in variety of notes."

According to Sweet "the song of the Black-cap is very loud and agreeable, and it has a great variety of notes; it is also a real mock-bird, and will catch the notes of any bird that it chances to hear sing; I have heard it imitate the Nightingale so exactly, that it has deceived me; also the Blackbird, Thrush, and the greater Pettichaps, all of which it imitates so much in its voice that it is almost impossible to detect it, except when it runs from one into the other, or shews itself in the open part of a tree."

"The song of the Blackcapt Fauvet," says Mr Neville Wood, "is, perhaps, not surpassed by any other of the family, with the exception, however, of those of the Brake Nightingale and Garden Fauvet. It is loud, rich, clear, and rapid, and, in its way, almost equals that of the leader of the vernal chorus, the Brake Nightingale. It sings more constantly than any of its

congeners, and indeed it is much more frequently heard than seen. If, however, you will sit upon a mossy bank, shaded with bushes and trees, near the spot from which the song proceeds, it will not be long before you obtain a sight of him, as, when undisturbed, he generally sings on rather a conspicuous station, at the top of a tree. But if you approach incautiously or hastily, it instantly darts down into the midst of the thickest brake the spot affords, where it will patiently wait your departure. In the meanwhile, however, for the sake of employment, it will renew its strains, even though you be standing within a few yards of it."

These descriptions are accurate, and yet after reading them, you will be surprised when, under favourable circumstances, you hear the bird pouring forth its rich strain from its perch on some tree by the edge of a wood. It is a sunny day in the middle of June ; the foliage of the trees is now expanded and the woods exhibit tufted masses of fresh green of various shades, that of the ash alone, as if fearful of the lingering colds, being yet scanty and pale. Let us skirt the plantation, although at this season there is not much chance of observing many birds, as their duty calls them away in quest of food for their young, and those that remain are concealed by the clustered leaves. Listen to those strains that issue from the midst of that broad plane-tree, so loud, so clear, so melodious, so modulated, so surpassingly beautiful, if one may so speak, that surely no bird ever sang so sweetly. It is a Thrush, I know it by that peculiar inflection : yet no, it cannot be, for the sounds are not quite so loud, nor is the strain so broken. The notes follow each other with rapidity, now the enunciation is hurried, anon deliberate, but always distinct, and neither strained not slurred by haste. You fancy that parts of the song resemble that of the Redbreast, the Garden Warbler, the Song Thrush, and perhaps the Sky Lark ; or that it is a graceful and harmonious combination of the songs of these and perhaps other birds ; yet if you listen more attentively you will be persuaded that the bird is no imitator, but that it sends forth in gladness the spontaneous, unpremeditated, and unborrowed strains that nature has taught it to emit as the expression of its feelings. The

song, if divided into fragments, would suffice for half a score of ordinary warblers, and is of surprising compass, and melodious beyond description. None of the notes seem to resemble those of the Blackbird, although they have been so represented; nor are they so plaintive as those of the Thrush. The song is decidedly cheerful, but not merry like that of the Lark, and is therefore not apt to cherish melancholy, but rather to encourage hope, and induce a placid and contented frame of mind, in which are combined admiration of the performer, and a kind of affection towards it, which renders it almost impossible for you to level your death-dealing tube at it.

Three males p. 485.

The nest of the Black-capped Warbler is placed in the fork of some shrub, and, according to Montagu, is "composed of dried stalks, generally of goose-grass, put together with a little wool, and sometimes a little green moss on the outside; the inside is lined with fibrous roots, upon which are frequently placed a few long hairs. The eggs are four or five in number," of a very broad oval form, eight and a half twelfths long, and seven-twelfths in breadth, greyish-white, faintly mottled and freckled with purplish-grey, with some marks and streaks of blackish-brown.

Three males p. 485. One from Ox.

This species is generally distributed in England, and is met with sparingly in the southern districts of Scotland. In the valley of the Clyde, especially about Hamilton, it is not uncommon. It is mentioned by Dr A. R. Young as occurring near Paisley, in Renfrewshire, is also stated to be found at Stevenston, Ayrshire, and has been met with in the counties of Perth and Forfar; but it has not been observed farther north. On the Continent it is dispersed in summer from Norway and Lapland to Spain and Italy, and has been found in Northern Africa, the Cape of Good Hope, Japan, and Java.

Young.—When fledged the young resemble the adult, with the exception of having the upper part of the head greyish-brown.

one from Oxfordshire, measures five inches exter-
nally, two and a half internally. It is of loose struc-
ture, composed of slender stems of grasses and other
plants, with a considerable intermixture of Galium
Aparine. The inner cup is more compact, and com-
posed chiefly of panicles of slender grasses, the lining of
rigid slender stems of grasses, and root-fibres of other
plants. The whole structure very much resembles that
of the nest of the White-throat.

Another, sent to me by Mr. Durham Weir, is exactly
similar, being of very slight structure, and composed
of the same materials. In the enclosing letter, dated
7th October 1842, are the following observations:— "For
several years past I have been in the unwearied pursuit
of this interesting and highly delightful songster of the
grove, and have not until this summer succeeded in
the attempt. On Tuesday, the 28th of June, in a plan-
tation near Wallhouse, in the parish of Torphichen,
Linlithgowshire, I saw in the middle of a wild goose-
berry bush surrounded by sloes, nettles, and other kinds
of plants, a nest of the Blackcap Warbler, containing
four unripe young ones, and a rotten egg. It was
placed about two feet four inches from the ground.
The male, when sitting upon his brood, was so ex-
ceedingly tame that he allowed me to put my hand
within a few inches of him. The female was more shy,
and kept at a distance. It was with great difficul-
ty that I succeeded in gaining them. Having
placed the young ones in a trap cage, and covered
it over with leaves in order to conceal it, it was not
until after several hours constant watching that
I caught the female. The male would not go into

it. I replaced the nest in its former situation, and went back in the course of a few days to try to get him. Just then upon hearing his friend of the nest, but there he discovered, and would not go near it. Having fed some of them however here and there amongst the branches, I ran up to the bush in a very great hurry as soon as I saw him hopping up and down in it, when, fortunately for me, he was entangled by the leg.

The old fellow came occasionally within a few yards of me, and, with a large caterpillar in his mouth, warbled in a low tone some beautiful notes. His alarm so nearly resembled that of the Garden Warbler that it was almost impossible to distinguish it. I kept the young birds for several weeks, and fed them chiefly with the maggots of the wasps."

Gmel. ~~Lath.~~

2. SYLVIA HORTENSIS. THE GARDEN WARBLER ~~OR PETTYCHAPS~~.

GREATER PETTYCHAPS. FAUVETTE. NETTLE-CREEPER.
BILLY WHITETHROAT. GARDEN FAUVET.



FIG. 171.

Sylvia hortensis. Lath. Ind. Orn. II. 507.
Bec-fin Fauvette. Sylvia hortensis. Temm. Man. d'Orn. I. 206.
Greater Pettychaps. Mont. Orn. Dict.
Greater Pettychaps. Curruca hortensis. Selb. Illustr. I. 211.
Sylvia hortensis. Greater Pettychaps. Jen. Brit. Vert. An. 108.

Upper parts light greyish-brown, tinged with olive, the wings and tail dusky, the margins of the quills and coverts of the same colour as the back, the lateral tail-feathers like the rest, the lower parts greyish-white, the breast and sides tinged with brown.

MALE.—The Garden Warbler is almost of the same size as the Black-capped Warbler, which it also closely resembles in form. It is somewhat larger than the White-throated Warbler, to which it is very similar in form and somewhat in colour. The specific characters which I have given to these species however will, I am confident, be found sufficient to enable the student to distinguish them. The bill of the present species is rather short, broader than high at the base, compressed towards the end, acute; the upper mandible with the dorsal outline nearly

straight and sloping until near the tip, which is a little declinate and narrow, the ridge rather distinct, the sides convex, the edges sharp and slightly overlapping, with a faint notch; the lower mandible with the angle of moderate length, rather narrow, the dorsal line ascending and very slightly convex, the sides sloping outwards and nearly flat at the base, convex towards the end, the edges sharp and direct; the gape-line nearly straight. Both mandibles are concave internally, with a prominent median line.

The head is oblong, and of moderate size; the whole form slender. The aperture of the eye two-twelfths in diameter, that of the ear two and a half; the nostrils elliptical, and a twelfth and a half long. The feet are of ordinary length, slender; the tarsus much compressed, acute behind, anteriorly with eight scutella, of which the upper are rather indistinct; the toes slender, compressed, the hind toe broad and flat at the base, with eight scutella above, the second with six, the third with ten, the fourth with nine scutella. The claws are of moderate length, arched, extremely compressed, laterally grooved, acute.

The plumage is soft and blended; the feathers oblong, with loose filaments, and a very slender plumule. Those at the base of the bill bristle-tipped; the bristle-feathers scarcely distinguishable. The wings are of moderate length, broad and rather pointed; the quills eighteen; the primaries rounded, except the first, which is extremely small, being only a fifth of the length of the second, which is as long as the fourth, and about a twelfth and a half of an inch shorter than the third; the secondaries abruptly and obliquely rounded. The tail straight, almost even, of moderate length, its feathers rather narrow, and obliquely rounded.

The bill is of a dusky brown, the base and edges of the lower mandible yellow, the inside of the mouth orange. The iris is hazel. The feet and claws greyish-brown. The general colour of the upper parts is light greyish-brown, tinged with olive; the sides of the neck brownish-grey. The quills and coverts are dusky brown, slightly margined with the same colour as that of the back. The tail is of the same dusky brown, its

lateral feathers like the rest. A small space around the eye whitish; the cheeks pale brownish; the lower parts yellowish-white, the lower part of the neck anteriorly tinged with reddish-brown, as are the sides; the axillar feathers, and lower wing-coverts of a fine ochraceous yellow tint, the lower tail-coverts pale greyish-brown, with white margins.

Length to end of tail 6 inches; extent of wings 9; bill along the ridge $\frac{4\frac{3}{4}}{12}$, along the edge of lower mandible $\frac{8}{12}$; wing from flexure $3\frac{1}{4}$; tail $2\frac{4}{12}$; tarsus $\frac{9\frac{1}{2}}{12}$; first toe $\frac{4\frac{1}{2}}{12}$, its claw $\frac{4}{12}$; second toe $\frac{4\frac{3}{4}}{12}$, its claw $\frac{2\frac{1}{2}}{12}$; third toe $\frac{6\frac{1}{2}}{12}$, its claw $\frac{3\frac{1}{2}}{12}$; fourth toe $\frac{4\frac{3}{4}}{12}$, its claw $\frac{2\frac{1}{2}}{12}$.

Female.—The female scarcely differs from the male in size or colour.

Habits.—The Garden Warbler makes its appearance in the south of England in the end of April or early in May, and according to various authorities is generally distributed in that country, although nowhere very common. Mr Robert D. Duncan, who has favoured me with some interesting notices respecting birds, writes as follows:—"Amongst the summer visitants of Midcalder in West Lothian I have noticed the Fauvette, or Greater Pettychaps, Sylvia hortensis. I have only twice seen or heard it however, and both times it was frequenting an underwood plantation, and there it warbled with its peculiar mellowness and sweetness combined, as it threaded its way round the trunks of the trees, through the brakes and the bushes of the copse." Mr Syme states that he has heard it on Corstorphine Hill and in Roslyn Woods, in the vicinity of Edinburgh. I have also heard of its occurring at Currie in the same neighbourhood, but have not met with it in any part of Scotland, and have failed in procuring specimens shot there. Mr Selby however has been more fortunate, for he has "found it throughout the greater part of Scotland, particularly where the wooded districts margin the lakes and rivers."

Not being well acquainted with the habits of this species, I must refer to those who have described them. The following is Montagu's account. "This species of Warbler, which

is not very plentiful in England, was first discovered in Lancashire, and sent from thence to Dr Latham by Sir Ashton Lever. However, since it has been better known, it is found to arrive in several of the southern counties about the latter end of April or beginning of May. Its song is little inferior to that of the Nightingale. Some of the notes are sweetly and softly drawn; others quick, lively, loud, and piercing, reaching the ear with pleasing harmony, something like the whistle of the Blackbird, but in a more hurried cadence: sings frequently after sunset. This bird chiefly inhabits thick hedges, where it makes a nest composed of goose-grass, and other fibrous plants, flimsily put together, like that of the common Whitethroat, with the addition sometimes of a little green moss externally: the nest is placed in some bush near the ground. It lays four eggs, about the size of a Hedge Sparrow's, weighing about thirty-six grains, of a dirty white, blotched all over with light brown, most numerous at the larger end, where spots of ash-colour also appear. In Wiltshire, where we have found this species not uncommon, it resorts to gardens in the latter end of summer, together with the Whitethroat and Blackcap, for the sake of currants and other fruit."

According to Sweet, "It first visits us in the spring, about the latter end of April, or the beginning of May; and its arrival is soon made known by its very loud and long song. It generally begins very low, not unlike the song of the Swallow, but raises it by degrees, until it resembles the song of the Blackbird, singing nearly all through the day, and the greater part of the time it stays with us, which is but short, as it leaves us again in August. In confinement it will sing nearly all through the year if it be treated well. In a wild state, it is generally found in gardens and plantations, where it feeds chiefly on fruits, and will not refuse some kinds of insects; it is very fond of the larva or caterpillar that is often found in abundance on cabbage plants, the produce of *Papilio Brassicæ*, and I know no other bird of the genus that will feed on it. Soon after its arrival here the strawberries are ripe, and it is not long before it finds them out; the cherries it will begin before they are quite ripe; and I know not any kind of fruit or berry which is

wholesome that it will refuse; it generally tastes the Plums, Pears, and early Apples, before it leaves us; and, when in confinement, it also feeds freely on Elder, Privet, and Ivy Berries; it is also partial to Barberries, and a soft Apple or Pear."

Mr Neville Wood says he has seen it "darting into the air to catch insects, in the same manner as the Spotted Flycatcher (*Muscicapa grisola*), often taking its stand on a dahlia stake, watching for its prey, darting aloft with inconceivable rapidity, with its bill upwards, catching the fly with a loud snap of the bill, and immediately returning to its station, again and again to renew the same process, with similar success."

This species, then, is found chiefly in thickets, plantations or woods in which there is a rank growth of brambles, and in gardens, where it lives a quiet and retired life, not usually obtruding itself on the notice of those who may have occasion to visit its haunts, otherwise than by its song, which it emits in the midst of the dense foliage, although sometimes when perched on a tree. It feeds on insects and worms, as well as pulpy fruits; is extremely active and restless, gliding with ease among the twigs, and when on the ground advancing by leaping. Its flights are generally short and rapid; but the character of its migratory movements has not been ascertained. Its nest is frequently placed on the ground, among rank grass, or under the protection of brambles or other plants, and in form and structure resembles that of the Whitethroats. The eggs, from four to six in number, are of a regularly oval form, nine-twelfths in length, six and a half twelfths in their greatest breadth. It appears to rear two broods in the season, and departs by the middle of September.

In the Sylvia nisoria ~~Hon. male and female~~ p. 485.
Lime wood – p. 487.

Young.—When fledged the young resemble their parents, but have the upper parts of a richer yellowish-brown tint, the lower more tinged with yellow, the axillars and lower wing-coverts pure yellow, the bill pale brown, the feet and claws yellowish-brown.

Lath.

3. SYLVIA CINEREA. THE WHITE-THROATED WARBLER, ~~OR WHITE-THROAT~~.

WHEY-BEARD. WHEETIE-WHY. PEGGY-WHITE-THROAT. NETTLE-CREEPER. CHURR. MUFF. MUFFET. MUFTY. CHARLY-MUFTY. BEARDY. BLETHERING TAM. WHATTIE. WHISHEY.

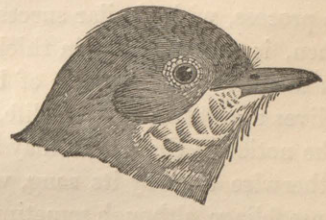


FIG. 172.

Sylvia cinerea. Lath. Ind. Orn. I. 514.
White-throat. Mont Orn. Dict.
Bec-fin grisette. Sylvia cinerea. Temm. Man. d'Orn. I. 207.
White-throat. Curruca cinerea. Selb. Illustr. I. 213.
Sylvia cinerea. White-throat. Jen. Brit. Vert. An. 109.

Male with the upper parts light greyish-brown, the head brownish-grey, the wings and tail dusky, the secondaries and their coverts broadly edged with light brownish-red, the lateral tail-feathers with the outer web and a portion of the inner greyish-white; lower parts greyish-white, the lower part of the fore-neck tinged with red, the sides and tibial feathers with brown. Female similar, the upper parts yellowish-brown, the head less tinged with grey, the lateral tail-feathers with brownish-white.

MALE.—This lively and loquacious little bird, which is extensively distributed in Britain, and in the cultivated parts chiefly frequents hedges, is of a slender and delicate form, although from its habit of swelling its plumage it has the appearance of being rather stout for its size. In other respects it presents the characters which I have given as common to all

the species of the genus. The bill is short, about the same breadth and depth at the base, beyond the middle compressed; the upper mandible has its dorsal outline at first straight and slightly declinate, towards the end convexo-declinate, the sides convex, the edges sharp, slightly inclinate, and overlapping, the tip narrow and sharpish with an obsolete sinus on each side; the lower mandible with the dorsal outline nearly straight and ascending, the sides erect but a little convex, the edges sharp and slightly inclinate; the gape-line nearly straight. Both mandibles are concave within, the upper with a slight prominent median line. The palate is flat; the aperture of the glottis oblongo-linear, edged with papillæ. The tongue emarginate and serrulate at the base, with a large conical papilla at each angle, tapering, nearly flat above, its edges thin, the point narrow, slit, and minutely lacerate; its length four-twelfths and a half. The aperture of the glottis is margined behind with large pointed papillæ, of which there are also many behind. The œsophagus is two inches and a quarter long, without crop or dilatation, its average diameter two-twelfths and a quarter; the stomach is eight and a half twelfths long, oblong, compressed, its lateral muscles large, the lower extremely thin; the tendons moderate, the inner coat very thin. The intestine is six inches and three quarters in length, its diameter diminishing from two and a half twelfths to one and a half; the cœca oblong, one-twelfth long, and an inch distant from the extremity.

The aperture of the eyes is two-twelfths in diameter. The nostrils elliptical, one-twelfth long. The ear circular, two-twelfths and three-fourths. The feet are slender, the tarsi compressed, with eight distinct anterior scales; the first toe with eight, the second with eight, the third with eleven, the fourth with ten scales. The claws are extremely slender, compressed, laterally grooved, moderately arched, rather long, and very acute.

The plumage is very soft and blended. All the feathers at the base of the bill are bristle-tipped; the bristle-feathers at the base of the upper mandible so small as scarcely to be distinguishable. The wings are of moderate length, broad, semi-

ovate, with eighteen quills; the first minute and acuminate, the second, third, and fourth almost equal, the third longest, the third and fourth slightly cut out at the end; the secondaries very long; the primaries rounded, the secondaries truncato-rotundate. The tail is rather long, straight, and rounded; the lateral feathers considerably shorter than the next; the feathers weak and rather narrow.

The upper mandible and the point of the lower are dusky, the rest flesh-coloured; the mouth yellow. The iris is brownish-black, the edges of the eyelids dusky. The tarsi are brownish-red, the toes darker, the claws dusky-brown. The general colour of the upper parts is light greyish-brown, the head darker and more tinged with grey, the rump more brown; the feathers of the eyelids whitish; the loral space, and a band below the eye, of the same colour as the head; the ear coverts brown; the sides of the neck pale brownish-grey, a faint patch of that colour projecting before the wing. The feathers of the wings and tail are dusky brown, edged with light brownish-red, the primaries narrowly with paler, the secondaries and their coverts broadly with deeper red; the lateral tail-feathers with an oblique longitudinal band of greyish-white, including the terminal half of the inner web, and the whole of the outer; the next two feathers tipped with the same; the lower parts are greyish-white; the fore part of the neck tinged with reddish, the sides and tibial feathers with brown. Some authors describe the throat and abdomen as white, but these parts are always more or less tinged with grey.

Length to end of tail $5\frac{10}{12}$ inches; extent of wings $8\frac{3}{4}$; bill along the ridge $\frac{4\frac{1}{2}}{12}$, along the edge of lower mandible $\frac{7}{12}$; wing $2\frac{10}{12}$; tail $2\frac{7}{12}$; tarsus $\frac{10}{12}$; hind toe $\frac{4\frac{1}{2}}{12}$, its claw $\frac{3\frac{1}{2}}{12}$; second toe $\frac{4}{12}$, its claw $\frac{2}{12}$; third toe $\frac{6\frac{1}{2}}{12}$, its claw $\frac{3}{12}$; fourth toe $\frac{4\frac{1}{2}}{12}$, its claw $\frac{2}{12}$.

Female.—The female does not differ materially in size. Its colours also are similar, but the upper parts, in place of being strongly tinged with grey, are generally of a uniform light-brown; the brownish-red on the wings is paler, and more tinged with yellow; the fore-neck is almost destitute of the faint

reddish tint generally seen on that of the male; and the white on the lateral tail-feathers is more obscure, being tinged with brown. The œsophagus is two inches and a quarter long, with an average diameter of two twelfths and a quarter. The stomach is eight and a half twelfths long; the intestine seven and a fourth twelfths long, its diameter varying from two and a half to one and a half twelfths; the cœca oblong, two twelfths in length.

Length to end of tail $5\frac{10}{12}$ inches; extent of wings $8\frac{1}{2}$; bill along the ridge $\frac{4\frac{1}{2}}{12}$; wing $2\frac{8}{12}$; tail $2\frac{7}{12}$; tarsus $\frac{10}{12}$; middle toe and claw $\frac{8\frac{1}{2}}{12}$.

Changes.—Individuals shot in May vary little in their colours, and are generally in full plumage, with the tips and edges of the feathers entire. It is therefore certain that this species moults in its southern residence. Individuals, however, occur in which some of the old feathers remain. I have before me, on the 25th May 1837, two specimens recently shot. In the female the plumage is all new and perfect; the tail considerably rounded, the two middle feathers being longest, the lateral three eighths of an inch shorter; while the male, although otherwise fresh, has one of the middle tail-feathers quite ragged, half of the outer web being worn off, and the other middle feather growing, and shorter than the lateral, both which are also unrenewed. The wings and the rest of the plumage are perfect. As the season advances, the colours fade, and the feathers are more or less worn; the upper parts assume a greyer tint, and the lower a more dusky hue, the reddish colour on the fore-neck becoming more conspicuous; the red edgings on the quills are sometimes almost obliterated, and the head is much darker. In specimens shot in July, the tail-feathers are often in a singularly ragged condition, especially the two middle and the lateral.

Habits.—The White-throated Warbler arrives from the 20th of April to the 10th of May, and immediately betakes itself to thickets or hawthorn hedges, where its presence may be detected by the short pleasantly modulated warble of a few

notes, which it emits at intervals. Were it not for this habit, it would be difficult to discover it, for, although it allows a person to approach very near, it flits incessantly and with extreme agility among the twigs, and if pursued, generally keeps on the other side of the hedge, flies off to a short distance, emits its song, sometimes while on wing, more frequently the moment it alights, then glides along, takes flight again, sings, and so continues for a long time. If you follow it to a distance, it returns in the same manner. When not disturbed, it often rises over the hedge or bush, to a height varying from a few feet to several yards, flutters in the air with fitful and fantastic motion, singing all the while, and then drops to its perch. In all its movements, if excited, it keeps the feathers of the head erected, and when singing swells out its throat conspicuously. Even after being shot, you find the feathers of that part standing out more than is usual in birds; and from this habit is probably derived the familiar names of Muftie or Muffety, or Charlie Muftie, by which it is generally known in Scotland. Its song is heard immediately after its arrival, and in a few days it is seen in pairs.

"The Whitethroat, Sylvia cinerea," Mr Hepburn writes, "was first seen here in 1838 on the 7th of May. Many of these active birds were sporting about in the very same hedge, in a well sheltered glen, where I first observed the Willow Wren; their lively notes and animated gestures shewing that they were not fatigued by their long journey to our northern clime; and the silvery whiteness of their throat and abdomen contrasting beautifully with the delicate green of the young foliage as they glided along. Every now and then one would start off for a distant part of the hedge, singing all the while, and accompanying its song with curious jerks and gesticulations of the body. When they sing in the hedge they erect the feathers on the occiput, and distend their throat slightly. Although the song is harsh, and may be called displeasing, I love it for variety's sake, and because it contrasts with the wild sweet warble of the Wood and Willow Wrens, and the soft song of the Swallow, Hirundo rustica. In a few days they were dispersed over the country. Several pairs breed annually in the

neighbourhood of our homestead. They frequently enter our garden in search of food. They delight to mob cats, never ceasing their alarm note till their foe retires. The peasant boys in this part of East Lothian imagine that this bird is mocking or laughing at them, as it tumbles over the hedge and bushes in the lane, and therefore they persecute it at all times, even more virulently than they do sparrows. When the currants, rasps, and gooseberries are ripe, the White-throats flock to our garden, and commit great havoc among these fruits. The last bird of this species that I saw was singing gaily in a sloe thicket at the foot of the Lammermoors, from which I had just descended after a very long excursion, on the evening of the 10th of September. The provincial names of the White-throat are Whishey, Whishey-whey-beard, and Whattie."

The activity, liveliness, and petulance of the White-throat, render it an amusing object of observation. If you happen to approach its nest, it comes up scolding vehemently with a churring sort of voice, and flits about until you leave the place, attempting by short flights to induce you to pursue it, when it flies along the hedge before you. Its song is often heard very late at night, and is among the earliest that comes on the ear in the fine summer mornings. If you be walking along a hedge in the early twilight, the little creature is sure to come up, announcing its presence by its song, and flitting in advance for perhaps a long way. One morning in July 1835, when approaching Edinburgh after walking all night from Glasgow, I encountered several White-throats in this manner, some of which accompanied or preceded me several hundred yards, although I could not see one of them.

Its food consists of insects and larvæ of various kinds, for which it searches among the shrubs and herbaceous plants in their vicinity, occasionally darting into the air after its prey. I have never met with it on open ground, nor have I found seeds in the stomachs of any that I have opened. But it often in gardens feeds on currants, rasps, and other fruits. The gizzard usually contains a considerable quantity of sand or particles of quartz, as is usual in insectivorous birds.

Its nest is usually placed among brambles or briars, or among

rank plants in the vicinity of a hedge or thicket, and is elegantly but loosely constructed, the exterior being composed chiefly of withered stems of Galium aparine, with similar slender and brittle or flexible stalks, some fine grass, and a little hair, all neatly arranged, but from the unpliant nature of the goose-grass, which bends only in an angular manner, leaving large vacuities. The lining is of finer filaments, with hair of various kinds, and neatly smoothed. The eggs, generally five, are of a regular oval form, greenish-white, spotted and freckled with greyish-green and purplish-grey, their average dimensions nine twelfths by six and three quarters. In the south of Scotland, the nest is seldom completed until the end of May.

This species is met with in all the lower parts, and in most of the valleys of the north of Scotland, and as you proceed from thence southward, you find it generally distributed; but in places where the shelter of thickets or hedges is not to be found, it does not make its appearance. Its song ceases to be heard about the middle of July, and by the end of September it has disappeared.

Young.—The young when fledged have the bill less dusky, and the feet paler than those of the adults. The upper parts are of a uniform reddish-brown; the quills more broadly margined with light-red, the lateral tail-feathers reddish-white in their whole extent, with the shaft dusky, the lower parts greyish-white, tinged with brown.

Remarks.—This species is very intimately allied to the preceding, but may readily be distinguished from it by comparing the specific characters given above. Its bill is considerably shorter, and less expanded at the base; the tail is proportionally longer. The lateral feathers of that of the other species are dusky like the rest, the quills are not edged with red, and the tarsi are leaden-coloured.

The above descriptions of the male and female are taken from two fresh specimens shot on the 22d of May, and examined internally as well as externally; the female ascertained by her largely developed oviduct, the eggs having all been laid.

4. SYLVIA GARRULA. THE WHITE-BREASTED WARBLER.

LESSER WHITE-THROAT. BABILLARD. BABBLING WARBLER.

Motacilla garrula. Linn. Fauna Suec. 254.
Curruca garrula. Briss. III. 384.
Sylvia Curruca. Lath. Ind. Orn. II. 509.
Lesser White-throat. Mont. Orn. Dict.
Bec-fin Babillard. Sylvia Curruca. Temm. Man. d'Orn. I. 209.
Sylvia Curruca. Lesser White-throat. Jen. Brit. Vert. An. 109.
Lesser Whitethroat. Curruca garrula. Selb. Illustr. I. 215.

Upper parts brownish-grey, the head dark ash-grey, the wings and tail dusky, the secondaries edged with light grey, the lateral tail-feathers nearly white; lower parts white, the breast tinged with red, the sides with grey.

MALE.—The Babillard, which although very closely allied to the species last described, and very similar to it in form and habits, is not so extensively distributed, nor so common in any locality, may be described, as to form, in nearly the same terms as that bird. The bill is short, rather broader than high at the base, compressed beyond the middle, its outlines straight, the upper declinate at the end, the tip with a slight sinus. The feet are slender, the tarsi compressed, with eight anterior scutella, the hind toe with eight, the inner with the same number, the third with twelve, and the fourth with eight scales; the claws extremely slender, compressed, laterally grooved, moderately arched, rather long, and very acute.

The plumage is very soft and blended. The bristle-feathers at the base of the bill very small. The wings of moderate length, broad, semi-ovate, with eighteen quills; the first quill is minute and acuminate, the second, third, and fourth nearly equal, the third however longest, the third and fourth with the outer web slightly cut out toward the end; the secondaries

very long and broadly rounded. The tail is rather long, straight, and rounded.

The bill is brownish-black, excepting the base of the lower mandible, which is brownish-yellow. The iris yellowish-white. The tarsi, toes, and claws bluish-grey. The general colour of the upper parts is brownish-grey, the head darker, the ear-coverts blackish-grey, those of the eyelids whitish. The feathers of the wings and tail are blackish-brown, edged with greyish-brown; the outer tail-feather on each side with an oblique longitudinal band of greyish-white, including the terminal half of the inner web and the whole of the outer. The throat, breast and belly, white, the latter tinged with red; the sides light brownish-grey.

Length to end of tail $5\frac{1}{4}$ inches; extent of wings 8; bill along the ridge $\frac{4\frac{1}{2}}{12}$, along the edge of lower mandible $\frac{6}{12}$; wing from flexure $2\frac{8}{12}$; tail $2\frac{5}{12}$; tarsus $\frac{10}{12}$; third toe $\frac{5\frac{3}{4}}{12}$, its claw $\frac{2\frac{1}{2}}{12}$.

Female.—The female is slightly smaller, and resembles the male in colour, only the upper parts are more tinged with brown, the lower with grey, and the cheeks paler.

Habits.—The White-breasted Warbler arrives about the same time as the White-throated species, appearing in the south of Scotland, where however it is very uncommon, about the 10th of May, and in the south of England a fortnight or three weeks earlier. It has been met with in most of the eastern and midland counties of England, becoming gradually rarer as we proceed northward. In Haddingtonshire it has been found by my friend Mr Hepburn, Mr Rennie mentions its occurrence at Musselburgh and in Ayrshire, and I have met with it near Edinburgh, where however it is extremely uncommon, while the other species is very abundant. It is stated by Dr A. R. Young to occur in the neighbourhood of Paisley in Renfrewshire; and in the Statistical Report of the Parish of Hamilton, in Lanarkshire, this species is mentioned in the following terms:—"*Curruca Sylviella*, lesser Whitethroat. This bird, supposed to be confined to England, is common here. The

nest is sometimes in a hedge, but more frequently among long dry grass, by the side of a wood, four or five inches from the ground, and generally overshadowed by a twig of bramble or some other shrub. The nest is more compact than that of the larger White-throat, which, in addition to its numerous names, is here called 'Beardy,' and 'Blethering Tam.' The song of the *Sylviella* is sweeter and more perfect than that of the common sort, and its eggs are also very different."

It frequents gardens, hedges, and thickets, searching for food among the branches, and is extremely active, petulant, and at the same time shy and wary, although in avoiding intruders upon its haunts it does not generally fly to a distance, but conceals itself among the foliage. Its food consists of insects, larvæ, and small fruits, especially currants. Its song is a short, not unpleasant warble, not so loud as that of the White-throat, nor performed on wing, but shriller and less melodious.

It begins to form its nest about three weeks after its arrival, usually placing it among briars or brambles, or in the lower part of a hedge, or among the herbage on a fence-bank, or the side of a ditch. It is composed of stems and leaves of slender grasses, rather loosely interwoven, with a lining of finer straws, fibrous roots, and hair. The eggs are five, eight-twelfths in length, six-twelfths in breadth, white or greyish-white, marked with spots and small patches of light grey and brown, more numerous toward the larger end.

Mr Hepburn, who was the first to discover this species in East Lothian, has furnished me with the following notice respecting it. "On the 7th of May 1838, I first heard the song of the Lesser White-throat, Sylvia Curruca. In its habits it is shy and retiring; it loves to frequent copses and gardens. When you approach its haunts, it conceals itself in the thickest shade, where it utters its alarm note, distending its throat a little. One day in July, when lying in wait for Wood Pigeons in a ditch beneath the shade of some hedge-row trees, I observed one sporting amongst the hawthorn twigs. He once sprung into the air, caught an insect, and then began to sing in a very low voice, ending in a very shrill tremulous cry. House Sparrows, Hedge Chanters, Chaffinches, Wagtails, Willow Wrens,

Wood Wrens, and the Greater White-throat, dart into the air after insects in the very same way. The little fellow ceased his song when he observed me, and sought the middle of the hedge, where he remained till I left my place. I teased him thus for about twenty minutes. He had young ones at the time. It was about the beginning of July that I observed that both the Greater and the Lesser White-throats made excursions into fields of growing wheat and beans. In the former case they settle on the stalk near to the ear, which they diligently examine. The Wheat Fly, Cecidomyia tritici, at this season deposits its eggs between the glumes of the corn, and we may reasonably suppose that the White-throats devour this destructive insect, in doing which they must confer a great benefit on the farmer, so far as their influence extends. After this I shall never grudge them a few currants. But this is not all, for besides destroying vast numbers of other insects which feed on the honey contained in the nectary of the bean, I have seen their little mouths filled with the black or collier Aphides, which often commit much damage by adhering to the top of the field bean, and sucking its juices, so that sometimes fruit, leaves, and stem perish. This bird prefers the Red currant to all other fruits. It departs about the 8th or 10th of September."

Mr Weir also informs me that in the end of May 1838, while watching the habits of the Missel Thrush, he observed in a plantation belonging to Mr Gillon of Wallhouse, a male Lesser Whitethroat singing upon the branch of an elm tree. It allowed him to go within about ten yards of it, so that he could not be mistaken as to the species.

On the continent this species is said to be generally distributed, proceeding as far north as Sweden, but in all the districts migratory. It is distinguished from the White-throated Warbler, by having the lower parts of a much purer white, the upper of a tint approaching to deep grey, the secondary quills destitute of rufous margins, and the feet dark bluish-grey.

Young.—The young when fledged resemble the female.

Meyer.

Genus III PHYLLOPNEUSTE. WOODWREN.

Bill rather short, very slender, straight, rather depressed at the base, compressed towards the end: upper mandible with the dorsal outline straight, towards the end slightly declinate, the ridge very narrow at the base, the nasal depression being large, the sides towards the end convex, the edges sharp and direct, with a distinct notch close to the tip, which is declinate, very narrow, and truncate; lower mandible with the angle of moderate length, narrow and rounded, the dorsal outline very slightly convex, the back broad and rather flattened at the base, narrow towards the end, the sides convex, the edges erect and sharp, slightly overlapped by those of the upper; the gape-line straight.

The upper mandible within is slightly concave, with a central prominent line; the palate flat, with two parallel ridges; the posterior aperture of the nares oblong behind, anteriorly linear and edged with minute pointed papillæ. The lower mandible is moderately concave, with a median prominent line. The tongue is slender, sagittate at the base and finely papillate, tapering to a slit point, and flat above. The mouth is bedewed with a clammy fluid. The œsophagus is of moderate width, nearly equal throughout, having no crop or distinct dilatation; the proventriculus small, with oblong glandules. The stomach is a gizzard of moderate power, roundish, compressed; its muscular coat thin, and divided into two lateral and an inferior muscle; the tendons large; the inner coat thin, tough, with broad rugæ. The intestine is short, its duodenal portion wider; the cœca very small and cylindrical; the rectum very short, with an oblong dilatation.

Nostrils oblong, narrow, in the lower anterior part of the large nasal depression, of which the membrane is feathered, excepting the narrow operculum. Eyes rather small, eyelids

feathered, with a narrow bare crenate margin. External aperture of ear large, roundish.

The general form is slender, the body ovate, the neck short, the head oblong, the wings of moderate length, the feet very slender. Tibia rather long and very slender; tarsus longish, much compressed, with seven anterior scutella, of which only the three lower are distinctly defined, its posterior edge sharp. Toes of moderate length, very slender, much compressed; the first rather large, flattened beneath; the second and fourth about equal; the third much longer, united to the fourth as far as the second joint. Claws rather long, arched, extremely compressed, laterally grooved, acute, that of the hind toe curved in a semicircle.

Plumage soft and blended, the feathers ovate, rounded, with loose barbs. The nasal membrane is covered with very small bristle-tipped feathers; and there is a series of small bristle-feathers along the base of the upper mandible. Tibial feathers very short, and extending a little below the joint anteriorly. Wings of moderate length, semicordate when extended, with nineteen quills, of which the first is very small, the next four longest, but varying proportionally in the different species; the primaries all rounded, with the shaft extremely attenuated at the end, and in the outer curved inwards; the secondaries broad and abruptly rounded. Tail rather long, straight, slightly emarginate, of twelve rather slender, weak feathers.

The Woodwrens are very small and delicate birds, of extremely active habits, intimately allied to the Warblers on the one hand, and to the Kinglets on the other. Three species occur in Britain, where they are migratory, visiting us about the middle or towards the end of April, and retiring in September. They frequent woods and bushy places, especially in the lower grounds and by rivers, brooks, lakes and pools. They feed entirely on insects of various kinds, larvæ, pupæ, and worms, which they search for among the foliage, on the twigs, and sometimes on the ground. Their flight is rapid, gliding, and undulated, but generally short in ordinary circumstances. Their song is short, lively, and melodious. They are generally distributed in the wooded districts, but are not equally dispersed.

The separation of the Woodwrens from the preceding genera is rather arbitrary, as they differ merely in being more delicate, with more attenuated bill and feet. They however bear so strong a mutual resemblance that it is difficult to distinguish them specially, although the proportional length of their outer primary quills affords a character sufficiently distinctive. This circumstance, with other cases of a like nature, ought to admonish those who place faith in the form of the tip of the wing as affording a generic character.

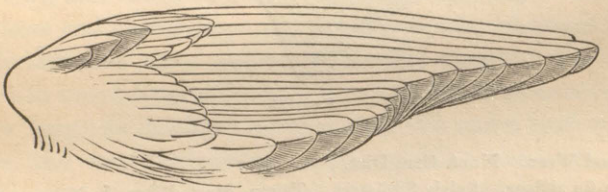


FIG. 173. YELLOW WOODWREN.



FIG. 174. WILLOW WOODWREN.



FIG. 175. CHIFF-CHAFF.

1. PHYLLOPNEUSTE SYLVICOLA. Lath. THE YELLOW WOODWREN.



Fig. 176.

Wood Wren. Mont. Orn. Dict.
Bec-fin siffleur. Sylvia Sibilatrix. Temm. Man. d'Orn. I. 223.
Sylvia sylvicola. Lath. Ind. Orn. Suppl. Vol. II. 53.
Wood-Wren. Sylvia Sibilatrix. Selb. Illustr. I. 224.
Sylvia sibilatrix. Wood-Wren. Jen. Brit. Vert. An. 110.

Length about five inches; wings long, the second quill intermediate in length between the third and fourth, which with the fifth have their outer webs cut out towards the end; the upper parts light yellowish-green, the throat and sides of the breast yellow, the breast, abdomen, and lower tail-coverts white.

Male.—The Yellow Woodwren bears so great a resemblance to the next species, the Willow Woodwren, that a person not having before him specimens of both, would find some difficulty in determining to which of the two an individual of either belonged. At the same time, the characters afforded by the wings are perfectly distinctive. The present species is a slender, delicate, and lively little bird, not unfrequent in open woods and thickets in many parts of the country, but not nearly so often met with as the Willow Woodwren, as it more commonly keeps among the higher branches, and is besides much less numerous.

The bill is rather short, slender, broader than high at the base, compressed towards the end, and in all other respects corresponds with the description of that organ given in the generic character, the sides sloping and towards the end convex, the tip declinato-decurvate, very narrow, but truncate, and having a distinct notch. The tongue is slender, three and a half twelfths long, emarginate and papillate at the base, concave above, its tip slit, with two acute points, and slightly bristled. The œsophagus is two inches long, its average diameter two-twelfths. The stomach when distended is half an inch long, and four and a half twelfths in breadth, of an elliptical form and moderately compressed; its muscular coat thin, but divided into three somewhat distinct muscles; the inner coat with broad longitudinal rugæ. The intestine is only five inches long, its duodenal portion a twelfth and a half in diameter, the rest diminishing to one-twelfth; the cœca one-twelfth long, and an inch distant from the extremity.

The eyes are of moderate size, their aperture having a diameter of two-twelfths. That of the external ear is two and a half twelfths. The feet are very slender; the tarsi of moderate length, much compressed, with seven anterior scutella, of which the upper four are very long and indistinct; the toes of moderate length, much compressed, the first with eight, the second with eight, the third with ten, the fourth also with ten scutella. The claws are arched, acute, extremely compressed, laterally grooved, that of the hind toe curved in a semicircle.

The plumage is very soft and blended, the feathers large, ovate, rounded, with very loose barbs; the nasal membrane with short roundish feathers; the basal margins of the upper mandible with small bristle-feathers. The wings are rather long, their tips when closed reaching to within a third of the end of the tail; the quills, nineteen in number, are all rounded, excepting the first which is pointed and only half an inch long; the second nearly two-twelfths shorter than the third, which is about half a twelfth longer than the fourth; the third, fourth, and fifth have the outer web cut out towards the end;

the secondaries long. The tail is rather long, and a little emarginate, the middle feathers being about a twelfth of an inch shorter than the lateral.

The upper mandible is dusky brown, with the edges yellowish; the lower mandible brownish-yellow, towards the end dusky. The tongue and mouth are orange; the iris brown. The feet are light brown, the claws wood-brown. The general colour of the upper parts is a delicate yellowish-green; a band of pale yellow passes from the nasal membrane over the eye; the loral space is slightly dusky; the eyelids, cheeks, throat and fore part of the neck, a small part of the breast and sides under the wing pale yellow; the rest of the lower parts of a silvery or greyish-white. The quills and coverts are greyish-brown, edged externally with yellowish-green, excepting the first and second quills, which are faintly edged with brownish-white; the tail-feathers similar, the lateral edged with pale brown; the lower wing-coverts greyish-brown, margined with pale yellow, the series over the quills white.

Length to end of tail $5\frac{2}{12}$ inches; extent of wings $8\frac{3}{4}$; wing from flexure $3\frac{2}{12}$; tail $2\frac{5}{12}$; bill along the ridge $\frac{4\frac{1}{2}}{12}$, along the edge of lower mandible $\frac{6}{12}$; tarsus $\frac{8\frac{1}{2}}{12}$; first toe $\frac{3\frac{1}{2}}{12}$, its claw $\frac{3}{12}$; second toe $\frac{3\frac{1}{2}}{12}$, its claw $\frac{1\frac{3}{4}}{12}$; third toe $\frac{5}{12}$, its claw $\frac{2\frac{1}{2}}{12}$; fourth toe $\frac{3\frac{1}{2}}{12}$, its claw $\frac{2}{12}$.

Female.—The female is not with certainty distinguishable from the male, unless by dissection, the colours being in general precisely similar.

Length to end of tail $5\frac{2}{12}$; extent of wings $8\frac{9}{12}$; bill along the ridge $\frac{4\frac{1}{2}}{12}$; tarsus $\frac{8\frac{1}{2}}{12}$; middle toe and claw $\frac{7\frac{1}{2}}{12}$.

Variations.—I have not observed any other variations than those dependent upon the wearing of the plumage and the fading of its tints. The above descriptions are from individuals in perfect plumage, not in the smallest degree worn, obtained in May. Many individuals arrive in that state, and must therefore have moulted in their winter residence, while in

others the quills and tail are more or less worn. As the season advances, the yellowish edgings of the wings and tail gradually disappear, and the lower parts become of a purer white.

Male and Female in Summer.—Towards the end of summer, the colour of the upper parts of the male is yellowish-brown tinged with grey; the wings and tail wood-brown; the lower parts nearly pure white. By the middle of June the female is of a nearly uniform greyish-brown above, and the yellow on the fore-neck is almost obliterated. The new plumage is completed by the middle of September.

Habits.—The Yellow Woodwren arrives from the 20th of April to the middle of May, and immediately betakes itself to woods and thickets, where it may be found during the summer in most parts of England and in the southern and middle divisions of Scotland. Its flight is rapid and undulatory, and it glides among the branches with extreme agility, in pursuit of insects, which it occasionally also follows to a short distance on wing. It is generally seen on trees, often on those of large size, and prefers woods and plantations to thickets or gardens. While flitting about it now and then emits a protracted rather feeble cheep; and its song, which it performs while perched on a twig, is, like that of the next species, soft, modulated, and short, being as it were a repetition of the syllable *twee*, the first notes prolonged, the last rapid, and forming, as Sweet expresses it, a "shrill shaking sort of note, which may be heard at a great distance, and cannot be confounded with the song of any other bird." "When it first arrives," as the same author states, "it continues to sing nearly all day long, and its song is continued more or less through most part of the summer, except the time that it is engaged in feeding its young; it is then discovered by a dull mournful sort of call, quite different from that of any other bird. It may be easily watched to its nest, which is built on the ground, in a thicket of small bushes, and consists of moss and dried leaves, with a covering at the top of the same materials, so that it is scarcely possible to dis-

cover it, without watching the old birds to it, either when they are building, or carrying food to their young."

Mr Weir informs me that he once found a nest of Wood-wrens, " which was built on the side of an old mossy ditch, in the middle of a plantation, about 230 yards from the house. They began it on Friday morning, the 2d of June 1837, and finished it on Saturday afternoon. The female laid six eggs; the first on Sunday the 4th, and the last on Friday the 9th, and began to sit on Saturday the 10th. The ground colour of the eggs is white, with markings of reddish-purple. In shape the nest was very much like the Willow Wren's, except that instead of being lined with feathers, it was built with fine grass and a few long hairs. I ginned the female, which was the finest specimen that I ever saw, and shot the male. The colour of the under part of their breast was a most beautiful pure silvery white, except the thighs, which were of a fine pale yellow. They have a very curious hissing and whistling trill, from which no doubt they have got the name of Sibilatrix."

My friend Mr Hepburn has favoured me with the following notice respecting this bird. " It was on the 5th of May last (1838), the thermometer at 58°, that I first observed the Wood Wren, Sylvia sibilatrix. A solitary bird was skulking about a hedge-row, which bounds a plantation on this farm (Whittingham); the wind was cold, and the sky overcast. The following morning was most delightful, dew-drops hung from every spray, glistening like pearls in the rays of the bright sun; the Wood Wrens, joyous at returning to their native land, and full of animation, were sporting about, and making the woods resound with their sweet wild notes. Nor were our more common birds silent; a mysterious sympathy seemed to unite all in performing one common hymn of grateful praise to the God of nature; the very calmness of the clear blue sky seemed to utter the gentle breathing of enjoyment. For some time after their arrival, the male loves most to mount to the very top of the tallest tree, where, adroitly poising himself, he pours forth his beautiful song, resembling the syllables *twee, twee, twee,* at first rather slow, but afterwards in a hurried manner, and accompanied by a curious shake of the

wings, and occasionally by a slight vertical motion of the tail. On Monday the 14th May, when observing the manners of this bird, one of which was sporting in a tall hedge-row, I disturbed a humble bee, Bombus terrestris, which was feeding on the expanded flower of the common but beautiful Dandelion. After circling and murmuring round my head, it flew off in a direction parallel to the hedge; and as it passed the Wood Wren, he ceased his song, and darted at it. I was so near that I distinctly heard his bill crack against the bee's horny sides. The insect was stunned, and nearly fell to the ground, while the Wood Wren returned to the hedge, from which he again made an unsuccessful dart at the poor bee. From the 14th to the 28th of July, I never heard the Wood Wren's song, although I saw plenty of the birds daily. During this period the weather was cloudy and very often wet, the east winds felt cold, although the thermometer ranged from 58° to 69° at noon. After this we had fine weather, when their song was again heard. As this bird is a great favourite of mine, I resolved to note every day on which I heard his delightful song; but at that time I little expected that I should ever have the honour of submitting the result of my labours to your inspection. I began on the 8th of August, and found that it sung on the 8th, 10th, 15th, 18th, and 26th, the thermometer at noon being 60°, 64°, 60°, 63°, and 63°; and on the 2d, 6th, 9th, and 10th of September, when the thermometer was 55°, 52°, 50°, and 50°. Between the 8th of August and the 10th of September, their voice was not heard during windy weather, unless when it fell calm. Notwithstanding the high range of the thermometer, the wind, particularly the east wind, felt very cold, when they did not sing. The 6th of September was a very stormy day, but about noon the wind and rain ceased, the sun broke forth, and the Wood Wren's note was again heard. When bad weather was impending, they sung very little. Both this bird and the Willow Wren are very tame; those in our garden would allow me to approach to within five or six feet of them, and often nearer. It was on the 10th of September that I last

saw this favourite bird : several were sporting on a row of tall poplars in the garden ; the weather was very calm ; their song was very distinct. It still rings in my ears, and I long for the season when the Wood Wren will revisit his native place. The young are fledged about the beginning of July."

As a British bird, the Woodwren seems to have been first noticed by White of Selborne, and afterwards by Montagu ; but it was first described and figured by Mr Thomas Lamb, in the second volume of the Transactions of the Linnæan Society, p. 245. Part of that gentleman's account of it is as follows : " It inhabits woods, and comes with the rest of the summer warblers, and in manners is much the same, running up and down trees in search of insects. I heard it first early in May, in Whitenight's Park, near Reading ; it was then hopping about on the upper branch of a very high pine, and having a very singular and shrill note, it attracted my attention, being very much like that of the Emberiza Miliaria (Linn.), but so astonishingly shrill that I heard it at more than a hundred yards distance : this it repeated once in three or four minutes. I never heard these birds before last spring, and nevertheless I have heard nine in the course of a month ; four in Whitenight's Park, and five in my tour to the Isle of Wight, viz. one in a wood at Stratfield Lea, one at East Stratton Park, two in the New Forest, and one in a wood near Highclere." A more particular account was afterwards given by Montagu in the fourth volume of the same work.

Young.—When their plumage is perfect, the young can scarcely be distinguished from their parents, their colours being the same, only of a lighter tint.

Remarks.—This species is said to be common in the southern and middle parts of the continent, and to extend as far north as Sweden. It migrates southward from all these countries, from the middle to the end of September. In Scotland it does not renew its plumage previous to its departure, which is also the case with the next species.

2. PHYLLOPNEUSTE TROCHILUS. THE WILLOW WOODWREN.

WILLOW WARBLER. WILLOW WREN. GROUND WREN. HAY BIRD. HUCK-MUCK.

Motacilla Trochilus. Linn. Syst. Nat. I. 338.
Sylvia Trochilus. Lath. Ind. Orn. II. 550.
Yellow Wren. Mont. Orn. Dict.
Bec-fin Pouillot. Sylvia Trochilus. Temm. Man. d'Orn. I. 224.
Yellow Wren. Sylvia Trochilus. Selb. Illustr. I. 226.
Sylvia Trochilus. Willow Wren. Jen. Brit. Vert. An. 111.

Length about five inches; wings of moderate length, the second quill shorter than the fifth, which, with the third and fourth, has its outer web cut out towards the end; the upper parts light greenish-brown, the feathers edged with yellowish-green; the cheeks and sides of the neck pale greyish-brown tinged with yellow; the fore-neck and sides greyish-white streaked with yellow; the breast and abdomen white; the lower tail-coverts yellowish-white.

Male.—The Willow Woodwren, which is generally distributed, and in most parts of the country of common occurrence, is, like the last, a delicate and most active little bird, less brightly coloured than it, but equally pleasing on account of its liveliness and its cheerful song. Of the three British species of this genus it is that which is most frequently met with.

The bill is rather short, very slender, straight, broader than high at the base, compressed towards the end; the upper mandible having the dorsal line towards the end declinate, the tip a little longer than that of the lower, and although very narrow, truncate, and having a distinct notch; the lower mandible with its dorsal line very slightly convex. Internally the upper mandible is very slightly concave, with a prominent

central line; the lower more concave, with a finer median line. The tongue is slender, tapering; its tip slit. The œsophagus is of nearly uniform diameter throughout, its length two inches and two-twelfths, its average breadth two-twelfths. The stomach is six and a half twelfths long, of an oblongo-rotundate form; its muscular coat thin, but divided into three somewhat distinct muscles; the tendons large; the inner coat thin, with broad longitudinal rugæ. The intestine is seven inches long, its duodenal portion two-twelfths in diameter, the rest diminishing to one-twelfth; the cœca one-twelfth long.

The eyes are of moderate size, their aperture having a diameter of nearly a twelfth and a half. That of the external ear is two and a half twelfths. The nostrils are linear-oblong, a twelfth and a half in length. The feet are very slender; the tarsus longish, much compressed, with seven anterior scutella, of which the upper four are indistinct; the toes of moderate length, much compressed, the first with eight, the second with eight, the third with ten, the fourth also with ten scutella. The claws are arched, acute, much compressed, with deep lateral grooves.

The plumage is very soft and blended, the feathers broad, with discrete barbs; the nasal membrane with small roundish feathers, the basal margins of the upper mandible with small bristle-feathers. The wings are of moderate length, their tips, when closed, being an inch distant from the end of the tail. The quills, nineteen in number, are a little decurved; the first is nine-twelfths of an inch long, the second intermediate in length between the fifth and sixth; the third, fourth, and fifth, having the outer web cut out towards the end; the secondaries long and abruptly rounded. The tail is rather long, and a little emarginate, the middle feathers being a twelfth and a half shorter than the longest.

The upper mandible is dusky brown, the lower brownish-yellow, its edges dusky orange, those of the upper paler; the inside of the mouth and the tongue light orange. The irides are dusky-brown. The feet are yellowish-brown, the claws wood-brown. The plumage of the upper parts is light greenish-brown; the wing-coverts, quills, and tail-feathers greyish-

brown, all edged externally with yellowish-green, excepting the first and second quills, and the outer tail-feather, which are whitish on the edge. The lower wing-coverts, the edge of the wing, and the lower tibial feathers, are gamboge yellow. A streak from the bill over the eye yellow, fading behind into white; a dusky loral streak; and an obscure yellow streak under the eye. The cheeks and sides of the neck are pale olivaceous, or greenish-grey, tinged with yellow; the fore-neck greyish-white, streaked with yellow; the throat greyish-white, as are the sides, on which however are yellow streaks; the breast silvery white; the hind part of the abdomen, and the lower tail-coverts, tinged with yellow.

Length to end of tail 5 inches; extent of wings $7\frac{3}{4}$; wing from flexure $2\frac{8}{12}$; tail $2\frac{2}{12}$; bill along the ridge $4\frac{1}{2}$ twelfths, along the edge of lower mandible $\frac{6}{12}$; tarsus $9\frac{1}{4}$ twelfths; first toe $3\frac{1}{4}$ twelfths, its claw $\frac{5}{12}$; second toe $3\frac{1}{2}$ twelfths, its claw $1\frac{3}{4}$ twelfths; third toe $\frac{5}{12}$, its claw $\frac{2}{12}$; fourth toe $3\frac{3}{4}$ twelfths, its claw $1\frac{1}{2}$ twelfths.

Female.—The female is a little larger, and has its colours slightly duller, but in external appearance is otherwise similar, the upper parts being greyish-brown tinged with green, the lower silvery white, with the same yellow markings as in the male.

Length $5\frac{2}{12}$ inches; extent of wings 8; wing from flexure $2\frac{9}{12}$; tail $2\frac{2}{12}$; tarsus $\frac{10}{12}$; first toe $3\frac{1}{4}$ twelfths, its claw $\frac{3}{12}$; second toe $\frac{5}{12}$, its claw $2\frac{1}{4}$ twelfths; third toe $\frac{5}{12}$, its claw $2\frac{1}{2}$ twelfths; fourth toe $3\frac{1}{4}$ twelfths, its claw $\frac{2}{12}$.

Variations.—I have not observed any other remarkable variations than those connected with the periodical change of plumage. The above descriptions refer to individuals having their feathers perfect. When these birds arrive in this country in April, the old individuals have their plumage considerably worn, in consequence of which the yellowish-green edgings are diminished, and the yellow tints more or less obliterated. At the same period, individuals are met with having the plumage in all respects perfect, and of a much brighter colour.

These most probably are young birds reared in the southern regions during the absence of the species, or at least young birds of the previous year, which have been long in moulting.

Male and Female in Summer.—As the season advances, the upper parts become of a nearly uniform greyish-brown, the yellow tints fade, so that the line over the eye becomes nearly white, as does the greater part of the lower surface. The new plumage is completed by the middle of September, when they take their departure.

Habits.—The Willow Woodwren arrives in the south of England early in April, and in the middle parts of Scotland about the 20th or 25th of that month, resorting to woods and thickets, especially those in the neighbourhood of water, where it remains until its departure late in September. It is extremely vivacious, and is seen briskly flitting about among the twigs, in search of insects, frequently making little excursions on wing in pursuit of a fly, and sometimes betaking itself to the ground, where it hops and frisks with equal activity. It flies with rapidity, in an undulating manner, but is seldom seen to perform long flights, and indeed is not very liable to be scared, for, at all times it seems to feel secure among the branches, and, during the breeding season, instead of quitting its usual place of abode on the approach of man, it advances toward him, flitting from twig to twig with restless anxiety. Although it sometimes appears in gardens, it prefers plantations and shrubbery in places remote from houses, and is frequently seen among willows and osiers. In the copses of hazel, oak, and alder, that skirt the streams of many of the Scottish valleys, it is a very frequent resident, although, from its diminutive size, unobtrusive manners, and plain tints, it excites little interest in the passing traveller. Its food consists of insects of various kinds, even of considerable size, as I have found remains of Muscæ in its stomach, as well as larvæ and pupæ, together with aphides. While flitting about, it emits a small shrill cheep, and during a great part of the season, but especially in May and June, may often be heard chanting its soft,

mellow, and most pleasing song, which consists of a repetition of the syllable *twee*, ten or more times, the first notes prolonged, the rest gradually falling and becoming shorter.

About a fortnight or three weeks after their arrival, they begin to form their nest, which is placed on the ground, among the herbage, on a dry bank, under a hedge, or beneath a bush; and is generally very bulky, and of a roundish form externally, with the aperture near the top. It is composed of moss and sometimes a few withered leaves; then of blades and stalks of fine grass, with long fibrous roots, and a good deal of hair; the internal layer consisting of feathers. Like the nest of the Common Wren, it varies in form and texture, but is always lined with feathers, in which respect it differs from that of the Yellow Woodwren, and agrees with that of the Chiff-chaff. Properly speaking, the nest is of the ordinary hemispherical form, with an arch or dome of a looser texture. One which I obtained on the 7th of July 1837, contained four eggs, and the parent bird was caught in the act of incubating, and slain, contrary to good feeling, by a boy hired to disclose his discovery of what he termed "a Whitie's nest." The description which I took at the time is as follows. "In the first place it is very large for the size of the bird, its external transverse diameter being just five inches, the inner two and a half inches. The top being removed, its cavity is hemispherical, but its external form is a little flattened, the walls being thicker at the sides. The exterior is composed of hypna and a few stalks and blades of grass; then a thick layer of fine stems, blades, and roots of grass, with a little moss intermixed; then a thin layer of long, undulated fibrous roots; then a lining, neatly woven, of hair of different colours, black, white, grey, and brown, and of different qualities, some being horse hair, others fine, together with a little wool; and, lastly, a very comfortable bedding of feathers, among which I can distinguish some of the Wood Pigeon and Blackbird. The dome is merely a continuation of the outer layers, not being lined with hair or feathers. The eggs are of a regular oval form, seven and a half twelfths long, five and a half twelfths broad, reddish-white, marked all over with irregularly dispers-

ed dots and spots, generally roundish, and not exceeding half a twelfth in their diameter, of a pale purplish-red. When blown, their ground colour becomes pure white, but the spots remain unaltered. They vary considerably in size, and a little in the tint of their spots, which are sometimes crowded at the larger end, and sometimes very thinly scattered.

Mr Weir informs me that on Friday the 2d of June 1837, he discovered "in a sloping bank, in his neighbourhood, a nest of the Willow Wren, built amongst long grass. The framework of it was composed of the stems of dried grass, intermixed with green moss, and the inside was lined principally with the feathers of the female pheasant. The entrance into it was wider than that of the Common Wren. The eggs were seven, white, with rusty brown spots, thinly dispersed, except at the larger end."

The eggs vary in number from four to seven, in form from oval to roundish, in length from seven to seven and a half twelfths, in the tint of the spots from light red to purplish-red, and in the number and distribution of the spots. The young are abroad from the middle to the end of June, when they betake themselves to bushes and trees; but a second brood is reared, and comes abroad in the beginning of August.

The male during the period of incubation often continues perched on a tree or bush for a long time, emitting at intervals its song, which in calm weather may be heard at the distance of six hundred yards or more. It seldom however remains many minutes in the same spot, but shifts from twig to twig. Having gone out with a friend, Mr Madden, on the 14th June 1837, to observe the habits of this bird and the Whinchat, both of which are plentiful along the base of the Pentland Hills, I first fell in with a male singing most melodiously, and at very short intervals, as it shifted and flitted about among the whin bushes. After watching it some time I shot it; and presently after, entering Swanston Wood, I came upon another perched on the summit of a tall tree, amusing itself in the same manner. It has been stated that the Woodwren frequents the top branches of lofty trees, while the Willow Wren keeps on the lower branches or in bushes; but I believe this distinction

to be imaginary, for both birds may be seen on the tops of tall trees, in shrubs, and even among whins and brambles, and both nestle on the ground. When the Willow Woodwren warbles, it swells out its throat, and the efforts used in enunciating the notes cause its body to vibrate in a small degree. This is probably the most common and most extensively distributed of all our warblers, and its song affords a most pleasing contrast to the discordant jingle of the Buntings, and the yelping of Sparrows.

Mr Hepburn has sent me the following notice regarding this species as observed by him in the interior of Haddingtonshire. "On the 9th of May 1838, I heard a great many Willow Wrens, Sylvia Trochilus, singing in a tall hedge-row, in a well-sheltered glen, also a few in the plantation in which I observed the Wood Wren. I saw none anywhere else until the 12th, when they were very generally distributed. The situations which they most frequent are gardens, plantations, and hedges, in the latter case giving the preference to those which have not been subjected to pruning. Their song is very pleasing, consisting of several plaintive notes on a regular descending scale. During windy weather we only hear a plaintive note resembling *whe-u-ee*. The song of this species is heard till the middle or end of July. In autumn, great numbers may be seen gliding amongst our fruit-trees and bushes. I do not think they ever eat fruit, their sole object being to feed on the multitudes of insects which resort thither. The young are fledged about the beginning of July, and from this neighbourhood the species takes its departure about the 8th or 10th of September. The provincial name of both this and the Yellow Wren is Willie Mufty."

Sweet, in his account of "British Warblers," p. 17, observes that "it is easily taken in a trap, baited with small caterpillars, or a rose branch covered with Aphides; and it will soon become very tame in confinement. One that I caught in September was, in three days afterwards, let out of its aviary into the room to catch the flies, which were numerous at that season. After amusing itself for some time in catching flies, it began singing; it did the same several other times when it was

let out, and in a few days it began to sing in its aviary. It soon became so familiar, that it would take flies out of the hand; and when it was out in the room, if a fly was held towards it, would fly up, and take it out of the hand." At length it became so very fat, by eating bruised hemp-seed, bread, and milk, that it cared little for any thing else. "The Willow Wren," he continues, "seems to be more tender than the Lesser Pettychaps, to which it is nearly related. When in confinement, it is fond of creeping up to the other birds, for the sake of their warmth, particularly at night; and it will not rest till it is very near to one, against which it squeezes itself as close as possible." Dr Liverpool, in Wood's "British Song-Birds," p. 134, also states that three or four in his aviary entirely lost their natural shyness after they had been with him for a month, and were the most amusing little pets he ever had.

Young.—The young when fledged differ little in appearance from the old birds in their newly completed plumage, having the upper parts light greenish-brown, the quills and tail-feathers edged with yellowish-green, the fore-neck yellow, and the greater part of the breast and abdomen tinged with the same.

Remarks.—According to authors, this species is generally distributed over the continent, from Italy to Sweden. It is in a manner precisely intermediate in form between the Yellow Woodwren and the Chiff-chaff, which latter however, were characters derived from the form of the wing of essential importance, ought to be referred to a distinct genus. The males arrive before the females, and presently commence singing on the tops of the trees. On the 1st of May 1839, great numbers were seen by me thus occupied along the Water of Leith, from Currie to Slateford near Edinburgh, as well as in the woods on the southern side of the Pentland Hills.

Linn.

3. PHYLLOPNEUSTE HIPPOLAIS. THE SHORT-WINGED WOODWREN, ~~OR CHIFF-CHAFF~~.

Chiff-chaff. CHIP-CHOP. HAY BIRD.

Sylvia Hippolais. Lath. Ind. Orn. II. 507.
Lesser Pettychaps. Mont. Orn. Dict.
Bec-fin veloce. Sylvia rufa. Temm. Man. d'Orn. I. 225.
Lesser Pettychaps. Sylvia Hippolais. Selb. Illustr. I. 222.
Sylvia Hippolais. Chiff-chaff. Jen. Brit. Vert. An. 111.

Length about four inches and a half; wings rather short, the second quill about the same length as the seventh; upper parts light greenish-brown tinged with grey, the feathers slightly edged with yellowish-green; lower brownish-white, tinged with yellow.

MALE.—This species closely resembles the Willow Woodwren in colour, and is nearly equal in size, but may be easily distinguished by its shorter and more rounded wings. In form it seems intermediate between the other Woodwrens and the Reguli or Kinglets. Its bill is short, very slender, depressed at the base, its upper outline convex toward the end, the notches very faint, the edges thin and inclined outwards, the tip acute. The head is ovate, rather depressed in front; the neck short; the body slender; the feet of moderate length; the tarsus much compressed, with only the three lower scutella distinct; the hind toe proportionally stouter, the inner slightly shorter than the outer, the claws arched, extremely compressed, acute.

The plumage is very soft and blended, as in the other species. The bristles at the base of the bill are pretty distinct. The wings are of moderate length, much more rounded than in the Willow Woodwren, the second quill being a quarter of an inch shorter than the third, which is equal to the fifth, and slightly exceeded by the fourth, while the seventh is rather

longer than the second, which in some specimens does not exceed even the eighth. The tail is rather long and scarcely emarginate, the middle feathers being hardly one-twelfth shorter than the outer.

The bill is dark-brown, its margins pale toward the base; the iris brown; the tarsi and toes dark-brown, the claws lighter. The general colour of the upper parts is of a nearly uniform light greenish-brown tinged with grey, the edges of the feathers being only a little paler; the quills and tail-feathers of a darker brown, with paler margins. A brownish-white streak passes over the eye; the cheeks are light greyish-brown; the lower parts are dull brownish-white, with a tinge of grey, and faint streaks of yellow; the axillar feathers and lower wing-coverts pale yellow.

Length to end of tail $4\frac{1}{2}$ inches; extent of wings 6; bill along the ridge $\frac{4\frac{1}{2}}{12}$, along the edge of lower mandible $\frac{6}{12}$; wing from flexure $2\frac{2}{12}$; tail $1\frac{10}{12}$; tarsus $\frac{8}{12}$; hind toe $\frac{2\frac{1}{2}}{12}$, its claw $\frac{2}{12}$; second toe $\frac{5}{12}$, its claw $\frac{1\frac{1}{2}}{12}$; third toe $\frac{4\frac{1}{2}}{12}$, its claw $\frac{2}{12}$; fourth toe $\frac{3\frac{1}{2}}{12}$, its claw $\frac{1\frac{1}{2}}{12}$.

Female.—The female cannot be distinguished from the male without dissection.

Habits.—This little bird, which has received its most familiar name from the character of its song, the notes of which may be fancifully syllabled into *chiff-chaff*, is generally distributed in England, although nowhere so common as the Willow-wren, and has been observed in various parts of Scotland, especially in the Lothians. It usually arrives in the southern parts about the beginning of April, sometimes however so early as the middle of March, so that, with the exception of the Wheatear it is, as Montagu has observed, the earliest of our migratory birds of the group of Songsters, properly so called. In the neighbourhood of Edinburgh, where it is very rare, it arrives from the 15th to the 25th of April, a week earlier than the Willow-wren, which it resembles, not in form and colours only, but also in its active and restless habits. On the other hand, it remains with us to a later period than that spe-

cies, generally delaying its departure until the beginning of October. Individuals indeed have been known to remain all winter. Thus Montagu mentions two that were seen in his garden about Christmas, and I have in my collection a specimen shot near Newhaven, in a turnip field, in January 1836.

In spring it is first observed among bushes in sheltered places, in nursery-grounds and gardens, searching among the twigs for insects, pecking the buds in quest of larvæ, and sallying forth occasionally on wing in pursuit of a passing gnat or other fly. As it proceeds it emits at intervals its notes, which are shrill, rather weak, and seem to resemble the syllables *cheep*, *cheep*, *cheep*, *cheep*, *chee*, rather than *chiff-chaff*, *cherry churry*, as some have interpreted them. It nestles from the beginning to the middle of June, and seems to rear two broods in the season. The nest is of an elliptical form, being arched over, with the aperture near the top, and is composed of withered leaves, grass, and fibrous roots, with a lining of feathers. The eggs are five or six, seven-twelfths in length, five and a half twelfths in breadth, white, with purplish-red spots chiefly near the larger end. "On a sloping bank," Mr Weir writes to me, "in Glenmavis, a beautiful and romantic valley, in the neighbourhood of Bathgate, belonging to Mrs Marjoribanks of Balbardie, in the last week of June 1836, I discovered a nest of the Chiff-chaff. In its structure it resembled that of the Willow-wren, but it was not so neatly finished. The outside of it was composed of dried grass, and the inside lined with feathers. It was carefully concealed amongst moss. The eggs were five, white with purple-red markings." It is usually placed on the ground, among grass or moss, on a hedge-bank, or by a ditch or brook.

According to authors this species is generally distributed on the continent, extending as far north as Norway in summer, and remaining in some of the southern parts in winter.

Young.—The young when fledged are similar to the adult, from which they can scarcely be distinguished. The yellow tints on their lower parts are brighter, their bill is much lighter, and the tarsi and toes are of a paler brown.

Genus IV. MELIZOPHILUS. Leach. FURZELING.

This genus, which was first proposed by Dr Leach, is scarcely distinguishable from Phyllopneuste on the one hand and Sylvia on the other. The only species of which it is composed is a small bird having in form and manners a considerable resemblance to the Whitethroat, but with the tail remarkably elongated.

Bill short, slender, broader than high at the base, compressed toward the end; upper mandible with its dorsal outline slightly declinate and convex, the ridge narrow, the edges thin and overlapping, the notches very small, the tip acute; lower mandible with the angle of moderate length and narrow, the sides convex, the edges a little inflected, the tip acute; the gape-line slightly arched. Tarsi slender, rather long, with the scutella distinct; claws of moderate length, much compressed, arched, very acute.

Nostrils elliptical, pervious, in the fore part of the nasal membrane, which is feathered behind. Eyes of moderate size; eyelids feathered, their bare edges crenate. External aperture of the ear large and roundish.

Plumage blended, the feathers ovate and rounded, with loose filaments; those at the base of the bill bristle-pointed. Wings rather short; the first primary very small, being about a fourth of the length of the second, which is shorter than the third and sixth, the fourth and fifth longest. Tail long, straight, graduated, the feathers rather narrow and weak.

The only species of this genus is confined to the southern parts of England, where it appears to be permanently resident.

7. MELIZOPHILUS PROVINCIALIS. THE PROVENCE FURZELING.

DARTFORD WARBLER.



Fig. 177.

Motacilla provincialis. Gmel. Syst. Nat. I. 958.
Sylvia Dartfordiensis. Lath. Ind. Orn. II. 517.
Dartford Warbler. Mont. Orn. Dict. and Suppl.
Bec-fin pitte-chou. Sylvia provincialis. Temm. Man. d'Orn. I. 211.
Dartford Warbler. Melizophilus provincialis. Selby, 911. I. 219.
Melizophilus provincialis. Dartford Warbler. Jen. Brit. Vert. An. 112.

Upper parts blackish-grey, fore part of neck and sides reddish-brown, belly white; tail long, graduated.

Male.—This diminutive and plainly coloured bird may be described as about the size of the Short-winged Woodwren, but with the tail much more elongated. Its form and proportions, with the texture of its plumage, having been described in the generic character, it will suffice here to indicate its colours. The bill is brownish-black, with the base of the lower mandible and the edges of the upper orange. The tarsi and toes are light reddish-brown, the claws dusky. The general colour of the upper parts is blackish-grey; the wing-coverts, quills, and tail-feathers, blackish-brown, edged with grey, the edge of the

wing white, the lateral tail-feathers tipped and margined with greyish-white. The cheeks are of the same colour as the back, the throat, fore-neck, breast and sides, reddish-brown or light reddish-purple; the chin with some whitish streaks, the belly white; the lower tail-coverts purplish-grey, as is the lower surface of the wings and tail.

Length to end of tail 5 inches; bill along the ridge $\frac{4\frac{1}{2}}{12}$; wing from flexure $2\frac{4}{12}$; tail $2\frac{5}{12}$; tarsus $\frac{9}{12}$; hind toe $\frac{5}{12}$; its claw $\frac{4}{12}$; second toe $\frac{3\frac{1}{2}}{12}$, its claw $\frac{2}{12}$; third toe $\frac{4\frac{3}{4}}{12}$, its claw $\frac{5}{12}$; fourth toe $\frac{3\frac{1}{2}}{12}$, its claw $\frac{2}{12}$.

Female.—The female resembles the male, but has the tints lighter. M. Temminck observes that there is on the throat a greater number of fine whitish streaks than in the male, which, if very old, often presents no traces of them.

Habits.—This bird was first discovered as British by Latham, who communicated his observations to Pennant, by whom it was described under the name of Dartford Warbler, the specimens having been killed on Bexley Heath, near that place, on the 10th of April 1773. Since that period it has been found on furzy commons in Kent, Surrey, Middlesex, Devonshire, Cornwall, Hampshire, and in several other counties, but has not been observed farther north than Liecestershire. According to the account given by Montagu and others, it is a permanent resident, inhabiting furze-thickets, among which it glides with the greatest activity, flying with short jerks in the manner of the Bushchats, and feeding on small insects, which it frequently seizes on wing, returning to its perch. Its song is weak and shrill, but often repeated, and is emitted either when the bird is stationed on a projecting twig, or hovering over a bush or thicket, in the manner of the White-throat and Bushchats. From these circumstances, it is probable that the true station of this bird is among the Saxicolinæ, between Accentor modularis and Fruticicola Rubetra. It is very shy, and on being approached conceals itself among the shrubs, creeping in the quiet and hideling manner of the Hedge Chanter. It was first ascertained to breed

with us by Montagu, who gives the following account of his observations.

" My opinion that this species of Warbler bred with us, was greatly strengthened by a letter which I had the pleasure of receiving from a scientific friend in Cornwall, well known in the literary world, Mr Stackhouse of Pendarvis, who assured me, that his brother had observed these birds for several years to inhabit furze, near Truro; and that he had not only seen them every month in the year, but had observed young ones soon after they had left the nest, though his search for the nest and eggs had been in vain.

" This information redoubled, if possible, my ardour, and I visited a large furze common in my neighbourhood, where I had seen several the preceding autumn; and upon close search on the 16th of July, three pairs of old birds were observed, two of which had young evidently by their extreme clamour, and by frequently appearing with food in their bills. On the 17th my researches were renewed, and after three hours watching the motions of another pair, I discovered the nest with three young. It was placed amongst the dead branches of the thickest furze, about two feet from the ground, slightly fastened between the main stems, not in a fork. On the same day, a pair were observed to be busied in carrying materials for building; and by concealing myself in the bushes, I soon discovered the place of nidification, and upon examination, found the nest was just begun. As early as the 19th the nest appeared to be finished; but it possessed only one egg on the 21st, and on the 26th it contained four, when the nest and eggs were secured.

" The nest is composed of dry vegetable stalks, particularly goose-grass, mixed with the tender dead branches of furze, not sufficiently hardened to become prickly; these are put together in a very loose manner, and intermixed very sparingly with wool. In one of the nests was a single partridge's feather. The lining is equally sparing, for it consists only of a few dry stalks of carex, without a single leaf of the plant, and only two or three of the panicles. This thin flimsy structure, which the eye pervades in all parts, much resembles the nest of the Whitethroat. The eggs are also somewhat similar to those of Syl-

via cinerea, but rather less, weighing only 22 grains. Like the eggs of that species, they possess a slight tinge of green; they are fully freckled all over with olivaceous-brown and cinereous, on a greenish-white ground; the markings becoming more dense, and forming a zone at the larger end.

"The young were taken when of the proper age, and fed with grasshoppers, a mixture of bread and milk, chopped boiled meat, and a little finely pounded hemp and rape seed. They began to shew some of their mature feathers on each side of the breast about the middle of August, when the sexes became apparent.

"The nestling attachment of these little birds was very conspicuous towards the dusk of the evening, for a long time after they had forsaken the nest; they became restless, and apparently in search of a roosting place, flying about the cage for half an hour, or until it was too dark to move with safety, when a singular soft note was uttered by one which had chosen a convenient spot for the night, at which instant they all assembled, repeating the same plaintive cry. In this interesting scene, as warmth was the object of all, a considerable bustle ensued, in order to obtain an inward birth, those on the outside alternately perching upon the others and forcing in between them. During this confusion, which sometimes continued for a few minutes, the cuddling note was continually emitted, and in an instant all was quiet.

"Nothing can exceed the activity of these little creatures; they are in perpetual motion the whole day, throwing themselves into various attitudes and gesticulations, erecting the crest and tail at intervals, accompanied by a double or triple cry, which seems to express the words *cha*, *cha*, *cha*. They frequently take their food while suspended to the wires, with their heads downwards, and not unusually turn over backwards on the perch. The males, of which there were three out of the four (a bird from another nest having been added), began to sing with the appearance of their first mature feathers, and continued in song all the month of October, frequently with scarcely any intermission for several hours together. The notes are entirely native, consisting of considerable variety,

delivered in a hurried manner, and in a much lower tone than I have heard the old birds in their natural haunts. This song is different from any thing of the kind I ever heard, but in part resembles most that of the Stone-chat.

" The Dartford Warbler, like the White-throat, will sometimes suspend itself on wing over the furze, singing the whole time, but is more frequently observed on the uppermost spray, in vocal strain for half an hour together. It is rather an early breeder. In 1805, we observed a pair of these birds carrying food in their bills early in the month of May; from which, and their continual vociferations, there could be no doubt of their having young, and it was also evident the young had quitted their nest and were skulking amongst the thick furze. The artifices these little creatures made to induce us to follow them, in order to entice us from the spot, were highly amusing: their usual cry was changed into a scream of distress; they would almost suffer the hand to touch them, and then fall from the spray, and tumble along the ground, as if fluttering in their last struggle for existence."

" Its habits," according to Rusticus of Godalming, who thus describes them in Loudon's Magazine, " are very like those of the little Wren; and when the leaves are off the trees, and the chill winter winds have driven the summer birds to the olive gardens of Spain, or across the Straits, the Furze Wren, as it is there called, is in the height of its enjoyment. I have seen them by dozens skipping about the furze, lighting for a moment on the very point of the sprigs, and instantly diving out of sight again, singing out their angry impatient ditty, for ever the same. They prefer those places where the furze is very thick, high, and difficult to get in."

Young.—According to M. Temminck, the young in their second plumage " have a greater number of small streaks on the throat, and the lower parts are interspersed with white feathers."

Genus VI. Meyer.

CALAMOHERPE. REEDLING.

The species of which this genus is composed are remarkable for their habit of frequenting marshy places, and the banks of rivers and lakes, among the willows, reeds, sedges, and other plants of which they seek their food, creeping along the stalks and foliage, to which they cling with as much ease and freedom as the Tits and Kinglets exhibit while searching the twigs of trees. But unless in having the tarsi rather more elongated, the claws larger, and the wings shorter and more concave, they differ little from some of the Sylviæ.

Bill of moderate length, straight, slender, broader than high at the base, compressed toward the end; upper mandible with its dorsal outline slightly declinate, towards the end a little convex, the ridge narrowed at the base, the sides convex towards the end, the edges direct, sharp, and overlapping, the tip narrow, the notches obscure; lower mandible with the angle of moderate length and narrow, the sides convex, the edges inflected, the tip acute; the gape-line straight.

The mouth narrow; both mandibles deeply concave within, with a median prominent line; the palate nearly flat, with two longitudinal prominent lines; the posterior aperture of the nares oblongo-linear, edged behind with small papillæ. Tongue of moderate length, very narrow, sagittate and papillate at the base, two of the papillæ much larger, concave above, horny towards the end, bristly on the edges at the tip, which is slit. The œsophagus is of moderate width, nearly uniform in diameter; the proventriculus oblong, with short oblong glandules. The stomach of moderate size, elliptical, compressed, its lateral muscles moderately thick, the lower not very distinct, the tendons rather large, the cuticular lining tough and longitudinally rugous. The intestine is of moderate length and width, of nearly uniform diameter throughout; the cœca very small; the cloaca oblong.

Nostrils elliptical, pervious, in the fore part of the nasal membrane, which is feathered behind. Eyes of moderate size; the eyelids feathered, their bare edges crenate. External aperture of the ear large and roundish.

Plumage generally blended, the feathers ovate and rounded, with loose filaments. Wings of moderate length, a little curved, broad, semi-ovate; quills eighteen; the first primary extremely small, being about a fifth of the length of the second, which is about the same length as the third; all the quills rounded. Tail rather long, straight, rounded, the feathers of moderate breadth, and weak.

The general form is slender, the neck short, the head ovate, flattened above and narrow before. The feet of moderate length, slender; the tarsus rather long, much compressed, with eight anterior scutella, and two longitudinal plates behind meeting so as to form an extremely thin edge. Toes much compressed, the second and fourth about equal, the first strongest, the third much longer than the lateral, and connected with the fourth at the base. Claws long, moderately arched, extremely compressed, laterally grooved, very acute.

The birds composing this genus are all of very small size. They frequent low marshy grounds, overgrown with rank plants, among which they pursue their prey, consisting of insects and occasionally small mollusca, seldom shewing themselves, but skulking as it were among the herbage. The genus is closely allied on the one hand to Sylvia, and on the other to Anorthura, several species of both these genera exhibiting not only considerable resemblance as to form, but also a great similarity in their habits. Two species occur in Britain, the Sedge Reedling, and the Marsh Reedling, both summer birds.

As specific names ought to remain as much as possible unaltered, that amid the fluctuations of opinion something of nomenclature may remain, I have adopted the name Calamoherpe of Meyer, which is expressive of the habits of the species, and that of ~~Reedling, proposed by Mr Blyth, and employed by Mr Neville Wood in his excellent "British Song Birds."~~

Reed-creeper which is simply a translation of the scientific name.

Salicaria.

1 CALAMOHERPE P~~HRAGMITIS~~. THE SEDGE REED~~LING~~. creeper.

SEDGE WARBLER. SEDGE-BIRD. SEDGE-WREN.



FIG. 178.

Sylvia Salicaria. Lath. Ind. Orn. II. 516.
Sedge Warbler. Mont. Orn. Dict.
Bec-fin phragmite. Sylvia Phragmitis. Temm. Man. d'Orn. I. 189.
Sedge-Warbler. Salicaria Phragmitis. Selb. Illustr. I. 201.
Sylvia Phragmitis. Sedge Warbler. Jen. Brit. Vert. An. 106.

Tail rather long and slightly rounded; the upper part of the head brownish-black, the feathers edged with light brown; the back and wing-coverts light olive-brown tinged with yellow, the central part of each feather dark brown; the rump light reddish-brown; a yellowish-white streak over the eye; the lower parts brownish-white, the tail-coverts unspotted.

MALE.—The Sedge Reedling is a delicate and lively little bird, which frequents the margins of streams and pools overgrown with reeds, sedges, and other strong aquatic plants, among which it seeks its food and nestles, so that it frequently eludes observation in places where it is not uncommon. Its size and proportions are nearly similar to those of the Grasshopper Chirper, but it is considerably more robust. The head is of moderate size, anteriorly narrowed, and flattened above. The bill is of moderate length, very slender, but less so than in

that species, it being considerably broader than high at the base, compressed towards the end; the upper mandible with its dorsal outline sloping a little, the sides convex towards the end, the edges direct, the notch very slight, the tip a little deflected; the lower mandible straight, its angle narrow, the dorsal outline ascending and almost straight, the edges a little inflected, the tip acute. The nostrils are elliptical, scarcely three quarters of a twelfth long; the aperture of the eyes a twelfth and a half, that of the ears two-twelfths and a half. The feet are rather long and slender; the tarsus much compressed, as are the toes; the former with seven distinct scutella, the first toe with six, the second with eight, the third with ten, the fourth with nine. The claws are long, arched, very slender, extremely compressed, laterally grooved, and very acute.

The plumage is blended, the feathers oblong and rounded; the bristle-feathers at the base of the upper mandible very small. The wings are rather short, a little concave, with nineteen rounded quills; the first about a fifth of the length of the second, which is scarcely shorter than the third, but a little longer than the fourth. The tail is rather long, straight, and slightly rounded.

The upper mandible is brownish-black, the lower pale flesh-coloured, towards the end dusky. The iris is brown. The tarsi are pale yellowish-grey, the toes a little darker, the claws wood-brown. The upper part of the head is brownish-black, streaked with light brown, the edges of the feathers being of the latter colour; the hind-neck, scapulars, and fore part of the back are reddish-brown, tinged with grey, each feather having a dark brown central spot; the hind part of the back is light reddish-brown, unspotted, although there is still a brown central mark, the upper tail-coverts more dusky. The quills and coverts are dusky-brown, edged with pale greyish-brown; the tail similar, the lateral feathers of the same colour as the rest. A broad yellowish-white band extends from the base of the nasal membrane over the eye; the loral space is dusky-brown, as are the ear-coverts. The lower parts are brownish-white, the fore part and sides of the neck, and the sides of the body

strongly tinged with yellowish-brown, as are the lower tail-coverts; the tibial feathers brown.

Length to end of tail $5\frac{4}{12}$ inches; extent of wings $7\frac{8}{12}$; wing from flexure $2\frac{8}{12}$; tail 2; bill along the ridge $\frac{5\frac{1}{2}}{12}$, along the edge of lower mandible $\frac{7\frac{1}{2}}{12}$; tarsus $\frac{9\frac{1}{2}}{12}$; first toe $\frac{4}{12}$, its claw $\frac{4\frac{3}{4}}{12}$; second toe $\frac{4\frac{1}{2}}{12}$; its claw $\frac{3}{12}$; third toe $\frac{5\frac{3}{4}}{12}$, its claw $\frac{3}{12}$; fourth toe $\frac{4\frac{1}{2}}{12}$, its claw $\frac{3}{12}$.

Female.—The female is slightly larger, and in colour resembles the male, the upper part of the head however being more tinged with brown, the back of a lighter tint, and the rump less bright.

Length to end of tail $4\frac{5}{12}$ inches; extent of wings $7\frac{8}{12}$; bill along the ridge $\frac{5\frac{3}{4}}{12}$; tarsus $\frac{9\frac{1}{2}}{12}$; middle toe and claw $\frac{8\frac{1}{2}}{12}$.

Variations.—The variations in adult individuals are not remarkable.

Changes.—As the summer advances the edges of the feathers disappear, so that the upper part of the head becomes nearly uniform brownish-black, and the lower parts dull greyish-white. The feathers of the tail, and the longer primary quills are generally worn and ragged, as in the White-throated Warbler and other species.

Habits.—The Sedge Reedling is rather abundant in many of the marshy parts of England, but is nowhere common in Scotland, although in the southern and middle divisions it is here and there to be met with. Its favourite resorts are marshy places overgrown with tall aquatic plants, especially reeds and carices, among which it usually makes its nest, sometimes fastening it to the stems at some height from the ground, but commonly placing it on the latter. At the margin of the marsh at the west end of Duddingston Loch, near Edinburgh, I found a nest of this species in the midst of a large clump of Solanum Dulcamara, supported by the branches, but so concealed that I discovered it only after cutting off a great number of the flowering twigs, which I was collecting for demon-

stration. The nest is bulky, rather neatly but loosely constructed, like that of the White-throat Warbler, composed of stalks and leaves of grasses and other slender plants, and lined with finer grass and some hair. The eggs, generally five, are eight-twelfths of an inch long, six-twelfths across, of a greenish-white colour, dotted and freckled with light brown and greenish-grey.

A nest found by Mr Weir in a whin bush, and which is before me, measures in its external diameter four inches, internally two and a quarter, and is composed of moss and straws, with a thick lining of panicles of Aira cæspitosa, and some down of syngenesian plants. The eggs, four in number, are pale yellowish-brown, freckled all over uniformly with greyish-brown.

During the breeding season this species is rarely seen unless one search expressly for it, as it seeks its food among the tall plants and willows; and the female will allow a person to pass quite close to her nest without flying off. When disturbed, she slips in a cowering manner among the plants, but after a little while comes up, and frisks about, evincing great anxiety. The common note is a small shrill cheep; but the song is lively, modulated, and mellow, although mingled with hurried notes, resembling a sort of chatter. Several authors have remarked that a stone thrown into the bush or among the herbage in which it is, will set it a-singing; but in this it is not peculiar, for the same effect is produced by disturbing the White-throated Warbler, and the Common Wren, as well as occasionally the Reed Bunting. I have heard the song emitted at midnight at short intervals in the month of June, when in the quiet of a fine night it has a very pleasing effect. The first time I thus heard it was in Renfrewshire, while walking from Glasgow to Greenock, on a very close and warm night; but the fact has been mentioned by many ornithologists. Its food consists of insects of various kinds, which it occasionally pursues on wing, and, if the report of authors be correct, of worms and slugs.

It arrives in England from the twentieth to the end of April, but in Scotland seldom before the beginning of May; and departs in the end of September, or the beginning of the next month.

Young.—The young when fledged have the bill greyish-brown above, flesh-coloured beneath; the feet flesh-coloured; the upper parts reddish-brown, the head spotted with brownish-black, the back with brown; the rump unspotted; the streak over the eye reddish-white; the lower parts dull brownish-white: in short, they resemble the adults, only that they are more tinged with red.

Remarks.—The Sedge Reedling is readily distinguished from the Grasshopper Chirper by the light-coloured band over the eye, as well as the much less rounded tail. It however greatly resembles that species both in form and in habits, although the one resorts to thickets and hedges, while the other betakes itself to marshy or moist coverts. The bill of this species, although slender, is rather broad at the base, and is straighter and longer than that of the White-throated Warbler and other species of that genus, of which however the general appearance and proportions are not very dissimilar. Indeed, were the birds of this family not so numerous, it would scarcely be judicious to refer them to so many genera.

Two males shot by Mr. John Machillivray — p. 490.

CALAMOHERPE ARUNDINACEA. THE MARSH REED~~LING.~~ -creeper.

REED WARBLER. REED WREN.

Motacilla arundinacea. Gmel. Syst. Nat. I. 992.
Sylvia arundinacea. Lath. Ind. Orn. II. 510.
Reed Wren. Mont. Orn. Dict.
Bec-fin des roseaux. Sylvia arundinacea. Temm. Man. d'Orn. I. 191.
Reed Wren. Salicaria arundinacea. Selb. Illustr. I. 203.
Sylvia arundinacea. Reed Wren. Jen. Brit. Vert. An. 107.

Tail rather long and considerably rounded; the upper parts of a uniform light olive-brown; the lower pale-yellow, the throat white.

MALE.—The Marsh Reedling is in form and size very similar to the Sedge Reedling, from which it is readily distinguishable by its more slender and elongated bill, the absence of a white streak over the eye, and the uniform tint of the upper parts of the body. In its proportions it approaches nearer to the Grasshopper Chirper, and especially in the form of the bill, which is very slender, considerably broader than high at the base, compressed toward the end; the upper mandible with its dorsal outline sloping and slightly convex, the sides convex toward the end, the edges direct, the notch nearly obsolete, the tip acute and a little deflected. The feet are rather long and slender; the tarsus much compressed, as are the toes; the claws long, very slender, extremely compressed, laterally grooved, and tapering to a fine point.

The plumage is blended, the feathers oblong and rounded; the basirostral bristles rather strong. The wings are rather short, a little concave, with nineteen quills, which are rounded at the end; the first about a fourth of the length of the second, the third longest, but the second and fourth nearly

equal. The tail is rather long, straight, and considerably rounded, the lateral feathers being three twelfths shorter than the middle.

The upper mandible is light brown, the lower pale flesh-colour tinged with yellow, toward the end brown. The tarsi and toes are yellowish-brown, the claws a little darker. The general colour of the upper parts is pale reddish brown, without dusky spots; the quills a little darker. The fore part of the neck is white; the rest of the lower parts is pale greyish-yellow.

Length to end of tail $5\frac{1}{2}$ inches; bill along the ridge $\frac{6}{12}$, along the edge of lower mandible $\frac{8}{12}$; wing from flexure $2\frac{9}{12}$; tail $2\frac{2}{12}$.

Female.—The female is somewhat smaller, but otherwise similar to the male.

Habits.—The Marsh Reedling has not hitherto been observed in Scotland, nor in the northern counties of England. It frequents marshy places margined or overgrown with reeds and other aquatic plants, among which it searches for its food, insects, worms, and slugs, in the hideling manner of the Sedge Reedling; with which no doubt it is frequently confounded. It arrives in the end of April, and returns southward in September. Its song is loud, cheerful, much diversified, and sometimes performed at night. Its nest differs from that of the Sedge Reedling in being composed of blades and stalks of grass, lined with fine grass and hair, fastened to the stalks of several reeds at some height from the ground, of an obconical form, from four to five inches in depth externally, about three internally, and as much in breadth at the top. Being thus deep, as Montagu remarks, it "gives security to the eggs, which would otherwise be thrown out by the wind." They are four or five in number, eight and a half twelfths long, nearly six twelfths in breadth, greyish-brown, faintly dotted and spotted with greenish-brown, and usually having one or two blackish irregular lines. The young are fledged by the middle of July.

Locustella. Ray. Locustelle.

Genus VII. ~~SIBILATRIX. CHIRPER~~.

Locustella

The genus to which I give the name of ~~Sibilatrix, or Chirper,~~ is composed of a few species of birds having a very slender form, and remarkable especially for their hideling habits, and peculiar sibilous cry, which, in one species has been compared to that of a Grasshopper or Mole Cricket. They differ from the species of the genus Calamoherpe in having the bill longer and more compressed, the tarsi and toes also more elongated, while the claws are shorter but more attenuated, and the tail larger and graduated.

Bill of moderate length, straight, very slender, slightly broader than high at the base, much compressed toward the end; upper mandible with its dorsal outline sloping a little, toward the end convex, the ridge narrow at the base, broader beyond the nostrils, the edges a little inflected, the tip very narrow, the notches slight; the lower mandible with the angle rather long and very narrow, the sides convex, the edges inflected, the tip acute; the gape-line nearly straight.

The nostrils linear-oblong, pervious, in the fore part of the nasal membrane, which is feathered behind. Eyes of moderate size. External aperture of the ears large and roundish.

The general form is slender and delicate, the neck rather short, the head ovato-oblong, flattened above, very narrow before. The feet of moderate length, slender; the tarsus rather long, extremely compressed, with eight large distinct anterior scutella, and two longitudinal plates behind, meeting so as to form an extremely thin edge. Toes extremely compressed, the second and fourth equal and rather long, the hind toe large, but with its claw not so long as the third and its claw, the fourth united as far as the second joint. Claws rather long, moderately arched, extremely compressed, laterally grooved, very acute.

Plumage soft and blended, the feathers broadly ovate and rounded, with loose filaments. Wings of moderate length, a little curved, broad, semi-ovate; quills eighteen; the first primary about a fourth of the length of the second, which is a little shorter than the third, the rest of the primaries gradually diminishing, and with the secondaries rounded. Tail rather long, broad, graduated, nearly straight, the feathers of moderate breadth, and weak.

Of this genus ~~only one~~ two species, "the Grasshopper Warbler," and "Dartford Warbler" are found in Britain.

1. ~~SIBILATRIX~~ LOCUSTELLA. ~~THE GRASSHOPPER CHIRPER.~~ Rayi Rayi's Locustelle.

GRASSHOPPER WARBLER. CRICKET BIRD. SIBILOUS BRAKEHOPPER.



Fig. 179.

Sylvia Locustella. Lath. Ind. Orn. II. 515.
Grasshopper Warbler. Mont. Orn. Dict.
Bec-fin Locustelle. Sylvia Locustella. Temm. Man. d'Orn. I. 184.
Salicaria Locustella. Grasshopper Warbler. Selb. Illustr. I. 199.
Sylvia Locustella. Grasshopper Warbler. Jen. Brit. Vert. An. 106.

Tail long, much graduated, and rounded; plumage of the upper parts dull olive brown, with oblong dusky spots, of the lower parts pale yellowish-brown, the fore part of the neck with a few dusky lines, the tail-coverts with a central brown mark. Young yellowish-brown, spotted with dusky above, brownish-yellow beneath.

Male.—The Grasshopper Chirper is an elegantly formed although plainly coloured little bird, remarkable especially for its peculiar cry, which bears a great resemblance to that of the Mole Cricket. Its general form is very slender; the head rather small and much narrowed anteriorly, the neck rather short; the bill of moderate length, slender, acute, about the same breadth and height at the base; the upper mandible with its dorsal outline sloping a little, the sides sloping at the

base, convex and compressed towards the end, the edges somewhat inflected towards the end, the notch slight, the tip very narrow; the lower mandible straight, its angle narrow, the sides at first sloping a little outwards, afterwards convex, the edges inflected, and the tip acute. The nostrils are linear-oblong, a little more than a twelfth of an inch long. The feet are very slender; the tarsus and toes extremely compressed, the former with eight distinct scutella, the hind toe stout, with six scutella, the second with eight, the third with ten, the fourth with nine. The claws are rather long, arched, extremely compressed, and very acute; the tip of that of the hind toe does not reach beyond the base of that of the middle toe.

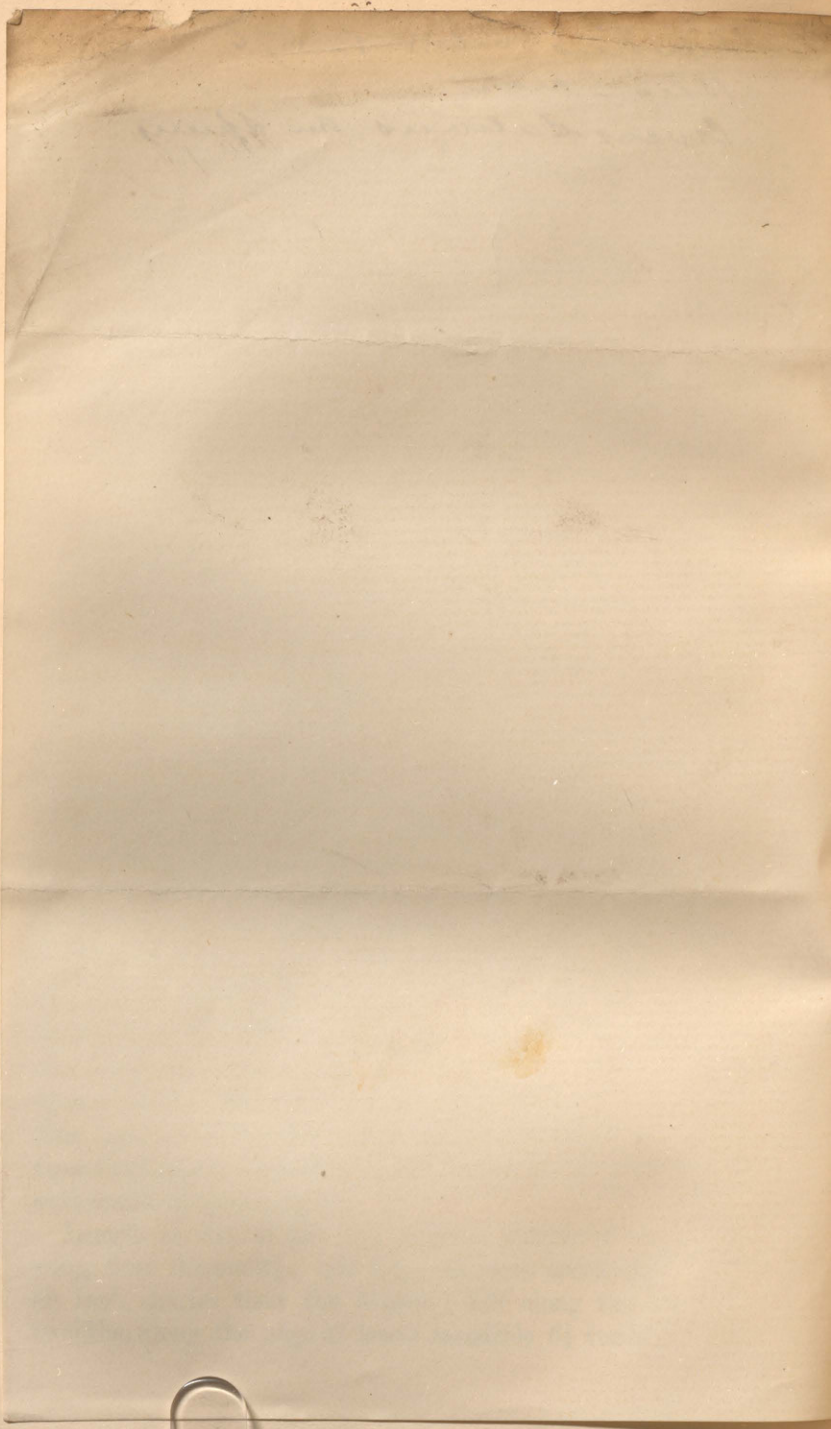
The plumage is blended, the feathers ovate and rounded; the bristle-feathers at the base of the upper mandible not distinguishable. The wings are of moderate length, a little concave, with nineteen rounded quills; the first very small, being about a fourth of the length of the second, the third longest, but the second and fourth almost as long. The tail is long, and much rounded or cuneate.

The bill is dusky brown above, the lower mandible pale yellow, its extremity brown. The iris brown; the feet and claws pale brownish-yellow. The general colour of the upper parts is dull olive brown, slightly tinged with yellow, each feather with its central part dusky, the dark markings much paler on the rump and upper tail-coverts. The feathers of the wings and tail are dark greyish-brown, edged with reddish-brown. The lower parts in general are pale yellowish-brown; the throat whitish, the fore-neck with a few inconspicuous brown lines, the abdomen paler, the feathers of the sides, and the lower tail-coverts pale yellowish-brown, with a central brown mark; the lower wing-coverts light yellowish-grey. The feathers of the tail are marked with numerous obscure transverse bands, depending upon a difference of texture, being obliterated in certain lights.

Length to end of tail $5\frac{8}{12}$ inches; extent of wings $7\frac{1}{2}$; wing from flexure $2\frac{1}{2}$; tail $2\frac{5}{12}$; shortest tail-feather $\frac{9}{12}$ of an inch shorter than the longest; bill along the ridge $4\frac{1}{2}$ twelfths, along the edge of lower mandible $6\frac{1}{2}$ twelfths; tar-

Lucretius. Lib. IV. l. 576
Bees - hair
Crocus Sativus an Spurs

Accentor



Ray's Locustella.

sus $\frac{10}{12}$; hind toe $\frac{4}{12}$, its claw $\frac{4}{12}$; second toe $\frac{5}{12}$, its claw $\frac{2}{12}$; third toe $\frac{7}{12}$, its claw $2\frac{1}{2}$ twelfths; fourth toe $\frac{5}{12}$, its claw $1\frac{1}{2}$ twelfths.

Female.—The female is exactly similar to the male, only that the dusky lines on the fore part of the neck are wanting.

Length to end of tail $5\frac{8}{12}$; extent of wings $7\frac{1}{2}$.

Variations.—I have not observed any remarkable variations in the colour of adult individuals of this species.

Changes of Plumage.—As the summer advances, the feathers of the tail and the quills become very ragged; and as the edges of the feathers generally fall off, the upper parts are more of a greyish-brown colour, and the lower paler.

" Warbler "

Habits.—The Grasshopper ~~Chirper~~ arrives in the south of England about the middle of April, in the district around Edinburgh not until the beginning of May, and betakes itself to thickets and hedges, where, owing to its peculiar habits, somewhat resembling those of the Hedge ~~Chanter~~, it is very seldom observed. " It is not a plentiful species," Montagu observes, " but probably appears less so by its habit of concealing itself among furze and thick hedges, discovering their place of concealment only by their singular cricket-like note, which is so exactly like that of the Grilla-Talpa as scarce to be distinguished. We have found it in Hampshire, in South Wales, and in Ireland, but nowhere so common as on Malmsbury Common in Wiltshire, to which place the males come about the second week in April. At this time only they expose themselves upon the top branches of the furze, and are continually making their singular chirping notes, their only song. In this situation we have killed several. As soon as the females arrive, which is about ten days after, the males no longer expose themselves, and are almost silent till about the dusk of the evening, when they are incessantly crying; possibly to decoy the larger species of Grasshoppers, or the Grilla-talpa, which begin their chirping with the setting sun. The female very

Accentor

much resembles the other sex; is so shy as to be obtained with difficulty. On the eighteenth of May we found the nest of this bird in a patch of thick brambles and furze, with two eggs; but as they had not been incubated, probably more would have been laid. The nest is of a flimsy texture, like that of the Whitethroat, composed of dried stalks and goose-grass, lined with fibrous roots. The eggs are of a spotless bluish-white, weighing twenty-one grains. From the scarcity of the bird, and the artful manner in which it conceals its nest, it is rarely found; nor has any author noticed it."

Mr Selby, besides repeating some of the above particulars, informs us that he has known it "for some years past, as a visitant to several parts of Northumberland, where it haunts low and damp situations, overgrown with furze, bramble and underwood." "The nest," he says, "is composed of moss, and the dried stems of the ladies' bed-straw (Galium), and bears a great resemblance to that of the Pettychaps, or the White-throat, though it is thicker, and more compact in texture. The eggs are four or five in number, of a pinkish-grey, with numerous specks of a deeper tint. The young, when disturbed, immediately quit the nest, although but half-fledged, trusting, doubtless, to their instinctive power of concealment."

It is probable that Montagu had mistaken the eggs of some other bird for those of the Grasshopper ~~Chirper~~, for all other observers have described the latter as spotted, although they differ in their account of the tint of their markings. Mr Yarrell in Mr Jenyns's British Vertebrate Animals, has described the egg as "pale reddish-white, speckled all over with darker red-brown: long. diam. eight lines; trans. diam. six lines." In his beautifully illustrated and carefully composed "History of British Birds," he has the following statement:— "This bird sometimes lays as many as seven eggs, eight lines long by six lines in breadth, of a pale reddish-white colour, freckled all over with specks of darker red. I have seen five or six sets of the eggs of the Grasshopper Warbler which did not differ either in colour or marks."

"Nothing," says White, "can be more amusing than the whisper of this little bird, which seems to be close by, though

Ray's Locustelle.

at an hundred yards distance; and, when close at your ear, is scarce any louder than when a great way off. Had I not been a little acquainted with insects, and known that the Grasshopper kind is not yet hatched, I should have hardly believed but that it had been a *locusta* whispering in the bushes. The country people laugh when you tell them that it is the note of a bird. It is the most artful creature, skulking in the thickest part of a bush, and will sing at a yard distance, provided it be concealed. I was obliged to get a person to go on the other side of the hedge where it haunted; and then it would run, creeping like a mouse before us for an hundred yards together, through the bottom of the thorns, yet it would not come into fair sight; but in a morning early, and when undisturbed, it sings on the top of a twig, gaping, and shivering with its wings."

Mr Weir, from a pair snared by whom I have taken the above description of the species, has favoured me with the following account of this interesting bird. "The Grasshopper Warblers are very seldom seen, for they artfully conceal themselves amongst furze bushes, or in the thickest brakes and hedges, from which it is very difficult to put them out. In the dusk of a warm and still summer's evening they make a lengthened grinding and hissing noise. About the beginning of June 1835, whilst I was watching at the back of an old wall upon the property of W. D. Gillon, Esq. of Wallhouse, near the top of Bathgate Hills, a pair of Stonechats feeding their young, I observed a little bird which I had never before seen rise in the air again and again in the pursuit of flies. I immediately ran to the spot to get a nearer view of it, and after a good deal of searching at length discovered its nest. It was placed in the middle of a clump of very thick whins, and completely overhung by their prickly branches. So cunningly was it concealed that I was obliged to beat the female out of it several times before I could find it out. It was composed of coarse dried grass, and had in it six beautiful white eggs closely freckled with carnation spots. I caught the birds with much difficulty in a trap-cage when their young were nearly ripe." The nest was rather bulky, but firmly put together, and was composed of stems and blades of dried grass, the interior of

similar but finer materials. One of the eggs, which Mr Weir had removed, and of which, together with the birds, I have made a drawing, was white, sprinkled all over with carmine dots.

Mr John M'Gillivray has given me the following account of observations made by him on this species. During a short. p. 488.

In July 1836, I obtained a young bird fully fledged, from the neighbourhood of Penicuick; and in August 1837, an adult shot in "the Meadows" at Edinburgh; but I have not met with the species in any other part of Scotland. In England it has been seen in Durham, Northumberland, Yorkshire, Cumberland, Suffolk, Surrey, Middlesex, Hampshire, Wiltshire, the counties along the southern coast, and South Wales.

Young.—The young bird when fully fledged has its plumage as firm as that of the old. The upper mandible is light brown, the lower dull yellow; the feet greyish-yellow. The upper parts are light yellowish-brown, spotted with dusky; the wing and tail-feathers dusky, edged with light yellowish-brown; the loral space brownish-white; the lower parts brownish-yellow, the throat lighter, the sides tinged with brown, the lower wing-coverts yellowish-grey; the lower tail-coverts similar, with a faint dusky medial streak. The young is thus similar to the adult, but more tinged with yellow, much in the same manner as happens in the Meadow Pipit, Anthus pratensis.

2. Locustella luscinioides.

after Melizophilus p. p. 387.

Genus V. REGULUS. Ray. KINGLET.

The diminutive, beautiful, and lively birds distinguished generically by the name of Reguli, are placed on the limits of the Sylviánæ and Parinæ, of which they combine the characters and habits. They are readily distinguished by their small size, the tuft of silky and coloured feathers on the head, which, bearing a fanciful resemblance to a golden crown, has given rise to their name. Their body is extremely short and roundish; the neck short; the head large, roundish, anteriorly convex.

The bill is shortish, straight, very slender, rather broader than high at the base, compressed towards the end, acute; the upper mandible with the culmen rather sharp, the sides sloping, at the base concave, towards the end convex; the edges overlapping, slightly inflected towards the tip, which is a little declinate, and destitute of notch; the lower mandible straight, its ridge and sides convex, the crura short, with a narrow but rounded angle, the edges inflected, the tip very narrow; the gape-line quite straight. The mouth narrow; both mandibles with a central prominent line. The palate flat; the posterior aperture of the nares linear, margined with papillæ. The tongue sagittate, slender, thin, concave above, slightly bristly at the tip. The œsophagus is narrow, without dilatation; the stomach elliptical, compressed; its muscular coat thick; its cuticular lining dense and rugous. The intestine is short and of moderate width; the cœca very small and cylindrical.

The eyes are of moderate size; the aperture of the ears large and roundish; the nostrils linear-oblong, direct, in the fore part of the longish nasal groove, and covered by a single delicate oblong feather. The legs are rather long; the tarsus longer than the middle toe, slender, compressed, scarcely rounded anteriorly, where it is covered by a single long plate, and three very short scutella at the lower part, posteriorly

edged. Toes rather large; the first more robust, and almost equal in length to the third; the second and fourth nearly equal, and united to the third by a membrane as far as the second joint. Claws long, arched, extremely compressed, laterally grooved, acute; that of the hind toe proportionally very large.

The plumage is extremely soft and downy; the feathers being broad, entirely downy, with a long very slender plumule of three filaments, the central much larger. Those about the base of the bill are bristle-pointed. The wings are of ordinary length, broad, and rounded, with eighteen quills; the first not half the length of the second, which is considerably shorter than the third, the fourth longest; the secondaries rounded at the end; all much curved. Tail of moderate length, seeming to come off abruptly from amidst the short downy coverts, much curved at the base, slightly emarginate, of twelve feathers, which are narrow and rounded with a minute tip.

The Kinglets are the smallest birds of the family of Sylvianæ. They inhabit the woods and thickets of the colder and temperate regions of both continents, moving about with great agility among the twigs, in search of insects, on which alone they feed. In this occupation they mingle with various species of the genus Parus, and are often accompanied by Certhiæ and other small birds. Their characteristic habits will be found exemplified by those of the species R. auricapillus, common in Britain; besides which a few individuals of another, R. ignicapillus, have been met with in England.

Having already imposed upon myself the rule laid down by the venerable legislators of the last century, and adopted by some of those of the present, that generic names shall not be those of men, women, or children, crafts, offices, or professions, it may seem inconsistent in me to name little birds having a red or yellow tuft of feathers on their head, little Kings, Kinglets, or Reguli, which signifies the same thing; but the diminutive termination in some measure does away with the impropriety of the appellation, especially as we have no order of men now known by the name of Reguli. The ancient name of one of these birds, Τροχίλος, Trochilus, aviculæ nomen, a

Τροχος, cursus, quod a Τρεχω, curro, festino, it being so called because of its nimbleness, would however be more appropriate, had it not already been given to the Humming birds. But should any one desire another generic name, let him choose from among the following, which have all been applied to the "Gold-crested Wren:"—Calendula, Parus, Regulus, Regillus, Rex, Senator, Basiliscus, Regaliolus, Orchillus, Tyrannus, Motacilla, Sylvia, Passerculus. As to the English nomenclature, perhaps Kinglet is as good a common name as Wrenlet, but I should decidedly reject "Wren," because it belongs peculiarly to another distinct genus. Perhaps however as the Pari are named Tom-tits, Tit-mice, and Ox-eyes, some may prefer naming the Reguli Tom-thumbs, Tit-nebs, or Pip-pops.

REGULUS AURICAPILLUS. THE GOLD-CROWNED KINGLET.

GOLDEN-CRESTED WREN. TIDLEY GOLDFINCH. MARYGOLD FINCH.



Fig. 180.

Motacilla Regulus. Linn. Syst. Nat. I. 338.
Sylvia Regulus. Lath. Ind. Orn. II. 548.
Golden-crested Wren. Mont. Orn. Dict.
Roitelet ordinaire. Sylvia Regulus. Temm. Man. d'Orn. I. 229.
Regulus cristatus, III. 157.
Gold-crested Regulus. Regulus auricapillus. Selb. Illustr. I. 229.
Regulus aurocapillus. Gold-crested Regulus. Jen. Brit. Vert. An. 113.

Plumage of the upper parts light yellowish-brown, of the lower pale brownish-grey; the top of the head silky and reddish-orange, with a longitudinal band on each side of black feathers, of which the inner webs of the inner are lemon-yellow; the cheeks yellowish-grey. Female similar, but with the crown lemon-yellow.

Male.—The Gold-crowned Kinglet, which is the smallest of our native birds, agrees in all respects with the generic character given in the preceding pages. The œsophagus is an inch and a half in length; the stomach elliptical, five twelfths long, and four in breadth; the intestine eight inches long, and the cœca only half a twelfth. The plumage is blended, and extremely soft and tufty, the feathers on the back and sides

especially being very elongated, and when raised presenting the appearance of a downy puff. Those on the top of the head are also elongated, silky, and shining. The parts about the base of the bill are covered with bristle-pointed feathers, and, as in the other species, a single oblong feather, with discrete filaments, lies over each nostril. The wings are of moderate length, and rounded; the first quill being about a third of the length of the second, which is considerably shorter than the third, the fourth longest. The tail is also of ordinary length, narrow, arched at the base, and slightly emarginate; the feathers rounded, with a minute tip.

The bill is blackish-brown, the mouth dusky orange. The iris dark brown. The feet dull yellowish-brown. The general colour of the upper parts is light yellowish-brown, of the lower pale brownish-grey. The sides of the head are yellowish-grey, without any streaks. On each side of the crown is a longitudinal black band, of which the inner feathers have their internal webs lemon-yellow; between these bands the feathers are of a beautiful reddish-orange tint, with silky lustre. The quills and tail-feathers are dusky, margined with yellowish-green; the base of six of the outer secondaries and inner primaries black, and the tips of the secondary coverts white, as are those of the first row of small coverts.

Length to end of tail $3\frac{3}{4}$ inches; extent of wings $6\frac{1}{2}$; bill along the ridge $\frac{4\frac{1}{2}}{12}$, along the edge of lower mandible $\frac{5\frac{1}{2}}{12}$; wing from flexure $2\frac{1\frac{1}{2}}{12}$; tail $1\frac{9}{12}$; tarsus $\frac{8}{12}$; first toe $\frac{5}{12}$, its claw $\frac{3\frac{1}{2}}{12}$; second toe $\frac{5}{12}$, its claw $\frac{1\frac{3}{4}}{12}$; third toe $\frac{4\frac{1}{2}}{12}$, its claw $\frac{2}{12}$; fourth toe $\frac{3\frac{1}{2}}{12}$, its claw $\frac{1\frac{3}{4}}{12}$.

Female.—The colours of the female are precisely similar, the only difference being in the crown, which is yellow in the centre, without any orange.

Length to end of tail $3\frac{1}{2}$ inches; extent of wings 6; bill along the ridge $\frac{3\frac{3}{4}}{12}$; tarsus $\frac{8}{12}$; middle toe $\frac{1}{2}$.

Variations.—I have not observed any remarkable deviations from the ordinary appearance. M. Temminck however states that "accidental varieties have the top of the head azure blue;

others of more frequent occurrence have the head and part of the plumage of a whitish colour; and frequently the feathers of the crest are of a livid yellow." Montagu also informs us that "a pair in the collection of Mr Luscombe, of Kingsbridge, are of a cream colour, with the usual yellow crown, by which the two sexes are distinguished."

Habits.—This lively little creature is a permanent resident in Britain, where it is generally distributed. It occurs abundantly in most parts of Scotland, where it is usually seen in woods of fir, pine, and larch, more especially in those of Pinus sylvestris, although I have often met with it among birch, oak, and other trees. It gives no preference to tall over stunted trees, but may as often be met with in a young plantation as in an old wood; and I have seen individuals even alight on broom bushes, in the neighbourhood of their favourite places of resort. Essentially gregarious, you never meet with it but in flocks, even in the breeding season, and in winter it forms extensive associations, which shift about continually from place to place.

While engaged in searching for food, the Kinglets incessantly emit a single shrill and feeble note, like the cry of a Shrewmouse, by which they are easily discovered in the woods, where it would otherwise be very difficult to trace them. They are continually in motion, fluttering from branch to branch, seldom hopping without using their wings, clinging to the twigs and leaves in every variety of attitude, and often hanging with their back undermost, in the manner of the Tits. They are far from being shy under any circumstances, but allow a person to approach within a few yards. In fact, they seem to pay no attention to an intruder, being apparently so busily occupied as to disregard every thing except the objects of their search. When a shot is fired at one, the rest do not fly off, so that a person, on falling in with a flock, may generally procure as many as he wishes. They fly with a fluttering motion, and without undulation, when the distance is short; but when moving from one wood to another their flight is rapid and undulated.

In pine or fir woods they are generally seen in company with the Coal Tit, the Long-tailed Tit, frequently also the Creeper, and occasionally the Blue Tit, and even the Greater Tit. Their most common associate however is the first of these species. All these birds live together in perfect amity, none of them appearing on any occasion to interfere with its neighbours.

The following extract of a letter from the Rev. Mr George Gordon, is so illustrative of the habits of this interesting bird, that I cannot forbear inserting it here. "Elgin, 24th November 1831. All the birds (sent) were killed by Mr Taylor in the 'Oakwood' (chiefly however composed of fir) near the town. The Titmice, Golden-crested Wren, and Creepers, seem to scour the wood in foraging parties of several dozens, all together, as one family. Generally the Long-tailed Titmouse took the lead, appearing the most active; the Blue Titmouse and Colemouse in the centre, the latter by its louder note bringing back such as were roaming too far from the main body. The Golden-crested Wrens were found in the rear, in greater numbers than any of the others. Through the flock a Creeper or two were searching the trunk from bottom to top, while its comrades left not a branch of the tree unvisited. It would have been a treat to have seen your friend Audubon, engaged for the first time in witnessing such a foray."

No doubt it would; but although I have not seen him admiring for the first time a flock of Gold-crests, I have had the pleasure of shooting several specimens along with him, on the 6th January 1831, at Granton, near Edinburgh, on the seashore, and again at Craiglockhart, in November 1835.

In the fir woods along the Tweed and its tributaries, and by the Dee, from Braemar to Aberdeen, as well as along the Spey, I have found this species particularly abundant; but it is of general distribution in Scotland, and is very easily procured in all parts of that country. Low states it to be indigenous even in Orkney, which is a very extraordinary circumstance, seeing there are no woods there. In the somewhat analogous tract of the Outer Hebrides I have never met with it. It is plentiful in the northern and midland counties of England; and if in the southern it is more rare, this probably arises from the comparative deficiency there of its favourite woods.

Early in spring it commences its song, which consists of a few feeble notes, and about the end of March begins to prepare for the important duty of rearing its young. The nest is generally suspended from a twig, so as to rest upon the branch immediately below; at least this is the case when a spruce fir has been selected. It is beautifully constructed of moss and lichens, interwoven with wool, and lined with feathers. I have before me three specimens furnished by Mr Weir. Two of them are globular; the first formed as described, and having very small feathers in the interior; its external diameter three inches and a half, that of the mouth, which is the uppermost part, an inch and a half; the second similar in form, but composed of moss mixed with willow down, and a few hairs, and lined with feathers of various kinds, some of them large. The third, which was suspended from a larch twig, is four-sided, or cubical, and is constructed of the same materials. The moss has been cut small in all these nests, and the feathers have been stuck into the walls of the nest so as to project inward, and in a manner to cover the mouth. The eggs vary from five to seven or eight, and are sometimes almost globular, but generally broadly ovate, from five and a half to six twelfths of an inch in length, and averaging nearly five-twelfths across. They are usually brownish or reddish-white, much darker, or light reddish-brown, at the larger end. They are smaller than the eggs of any other British bird, those of the Longtailed Tit being next in size.

Mr Selby, to whom we are indebted for many valuable contributions to our knowledge respecting the birds of Britain, communicated to the Wernerian Society in 1824 a very interesting paper on this bird. He had for some years remarked that towards the end of October, the Golden-crested Reguli became very numerous along the coast of Northumberland, and in 1822, had the pleasure of witnessing their arrival. "This happened after a severe gale, which commenced on the 24th of October, at N.E., and continued during the whole of the 25th; but which for some hours previous to its conclusion, veered about to the E. and S. of E. On the morning of the 26th they were seen to arrive by hundreds upon the beach, so fatigued and overcome by the unfavourable change of wind, the

length of their journey, or both combined, as to drop the moment they reached land, unable to make any further exertions. Great numbers were in consequence at first taken by the hand, unable to rise or escape their pursuers." This flight he ascertained to have extended from beyond Berwick northwards as far as Whitby in Yorkshire. Redwings, Fieldfares, and Woodcocks, arrived at the same time. The Kinglets soon spread over the country, and their numbers daily decreased, until about Christmas, when scarcely more than the usual number remained. There was a severe snow storm in the beginning of January, and towards the end of that month, during a thaw which preceded a second and still more severe storm, they all disappeared. Next year none were seen in the district until October, when a few arrived at the usual period. In August and September 1823, during an excursion in Scotland, he looked for them in every likely locality, but without success. Mr Selby supposes this great flight which arrived on the Northumbrian coast to have come "from the more northern provinces of Europe," which would be probable enough, were it not that, as he could find none in Scotland the following year, in places where he had previously seen them very plentiful, they might as reasonably be supposed to have come from that country.

In the neighbourhood of Edinburgh I ~~have~~ found them for several years ~~back~~ common enough in all the fir woods; but ~~we have no~~ without any apparent accession of numbers at the period of the arrival of the Woodcock and Fieldfare. That an occasional irruption from the continent may take place is not unlikely; and it seems probable that the individuals observed by Mr Low in Orkney may have come from that quarter. Bechstein states that in Germany they are seen passing southward in October, and again northward in March, but that flocks reside there during the whole year. It does not appear that with us any other migration than a mere shifting from one wood to another usually takes place.

In his edition of Montagu's Ornithological Dictionary, Mr Rennie has given a very amusing account of a family of Goldcrests. The young, eight in number (two having died), were

fed by the female alone, whose visits "were generally repeated in the space of a minute and a half or two minutes, or, upon an average, thirty-six times in an hour; and this continued full sixteen hours in a day, which, if equally divided between the eight young ones, each would receive seventy-two feeds in the day; the whole amounting to 576. From examination of the food, which by accident now and then dropped into the nest, I judged from those weighed, that each feed was a quarter of a grain upon an average; so that each young one was supplied with eighteen grains weight in a day; and as the young birds weighed about seventy-two grains at the time they began to perch, they consumed nearly their weight of food in four days at that time."

The following observations, sent to me by my friend Mr Hepburn, a very zealous young ornithologist, are characteristic as to the habits of this species. "The Golden-crested Wren is common in our woods and fir plantations. It also frequents our hedge-rows and gardens, more particularly during the winter. The activity of this little bird is surprising: it will alight on the branch of a tall tree in the copse, and after a momentary survey, it will dart at its prey reposing on the back of the stem, suspend itself for a moment by a rapid motion of its wings, then return to a branch, again glance at the stem and flit to it. In this manner it gradually mounts to the top of the tree, and, should its prey prove to be plentiful, it will ascend and descend several times in succession, occasionally darting into the air at some unwary gnat sporting in the beams of the winter sun. Judging from their manner of capturing their prey, I think live insects must form their principal food. Sometimes they will descend and hop on the ground for some minutes. In a fine day their notes are heard incessantly. They resemble the cheep of a mouse, the *chir-r-r* of the Blue Tit, and the *if-hee if-hee* of the Coal Tit. Their Song, which this year, 1839, I heard first on the 28th February, is weak, yet very sweet."

It is really astonishing that these diminutive birds should be able to withstand the rigours of our climate, especially in such elevated districts as the upper parts of the valleys of the Spey

and Dee, where however they remain all the winter and spring. Yet that they sometimes perish in great numbers is apparent from their disappearance in particular districts after unusually severe winters. Thus, in the summer of 1838, they were extremely scarce in the neighbourhood of Bathgate; and yet in that of Edinburgh, not twenty miles distant, their flocks seemed to have undergone no diminution. Great numbers are annually killed, to be stuffed, or in mere wantonness; and I suppose that not fewer than fifty individuals have been destroyed by myself.

Young.—In their first plumage, the young are entirely destitude of yellow on the head, the upper part of which is light greyish-brown, with two lateral bands of greyish-black; the upper parts of the body are greyish-yellow; the quills and tail-feathers as in the adult, but not so decidedly marked; the cheeks yellowish-grey, the lower parts greyish-white tinged with yellow; the bill and feet much paler than in the adult.

Progress toward Maturity.—In the end of August I have found the moult completed. The second plumage is similar to that of the old bird, but with this difference that the males have the orange of the crown much less extended, while in the females the feathers there are of a greenish-yellow tint, without any orange.

2. REGULUS IGNICAPILLUS. THE FIRE-CROWNED KINGLET.

Roitelet triple-bandeau. Sylvia ignicapilla. Temm. Man. d'Orn. I. 231.
Regulus ignicapillus. Id. III. 158.
Regulus ignicapillus. Fire-crested Kinglet. Jen. Brit. Vert. An. 113.

Plumage of the upper parts light yellowish-brown, of the lower pale brownish grey; the top of the head silky and reddish-orange, with a longitudinal band on each side of black feathers, the inner webs of some of which are pale yellow; the cheeks yellowish-grey; a black band in the loral space, and behind the eye, a narrower dusky band from the base of the lower mandible. Female with the crown dull pale orange, and the dusky bands on the cheek obscure.

Male.—This species, although of the same size as the other, and similar in colouring, is easily distinguished by its two additional dusky bands on each side of the head. The bill is slightly longer, and somewhat wider at the base, but the differences in this respect, as well as in the form and proportions of the other parts, are scarcely appreciable. The plumage also may be described in the same terms; but the tuft of silky feathers on the head is larger, and the tail is a little longer. The wings are of moderate length, rounded; the first quill about a third of the length of the second, the fourth longest; the tail arched at the base, and slightly emarginate.

The bill is blackish-brown; the feet and claws dull yellowish-brown. The general colour of the upper parts is light yellowish-olive, of the lower greyish-white tinged with brown. The sides of the head are yellowish-grey; a narrow dusky streak proceeds from the base of the lower mandible a short way down the neck; the loral space, and a band behind the eye, black; a greyish-white line beneath, and another above

the eye, the latter succeeded by a broader black band, meeting its fellow on the anterior part of the forehead, and enclosing a set of silken feathers of a bright yellowish-red or orange colour, more intense than that of the preceding species, and similarly margined with pale yellow. The quills and tail-feathers are dusky, margined with yellowish-green; the secondary coverts are tipped with greyish-white, and there is a conspicuous brownish-black patch on the wing, the base of six of the outer secondaries and inner primaries being of that colour.

Length to end of tail $3\frac{1}{12}$ inches; bill along the ridge $\frac{4\frac{1}{2}}{12}$; wing from flexure $2\frac{5}{12}$; tail $1\frac{10}{12}$; tarsus $\frac{8}{12}$; hind toe $\frac{3\frac{1}{2}}{12}$, its claw $\frac{3}{12}$; middle toe $\frac{4\frac{1}{2}}{12}$, its claw $\frac{2\frac{1}{2}}{12}$.

Female.—The female resembles the male, from which it differs in having the orange crest much paler, and the dusky streaks on the sides of the head fainter.

Habits.—This species having been met with only four or five times in England, its habits have not been observed with us. On the continent, it is migratory, although it is said to be sometimes met with in France during the winter. Its habits and food are described as similar to those of the Golden-crested Kinglet, but it does not form large flocks, as that species frequently does. The first individual found in this country was obtained by Mr Jenyns in his garden at Swaffham Bulbeck, near Cambridge, in the autumn of 1832. The other instances of its occurrence mentioned have all been on the eastern coast of England, whither the birds had probably been driven in the course of their autumnal migration southward.

3. Regulus modestus.

Family VIII. PARINÆ. Parine Birds.

TITS AND ALLIED SPECIES.

or "Titmice"

The Tits, of which several species are permanent residents in Britain, may be taken as the typical representatives of this family, which is composed of small birds seldom attaining the size of a House Sparrow, and characterized as follows. Their general form is moderately full; their head large, broadly ovate and convex. Their bill is short, straight, tapering, hard, with its outlines more or less convex, the mandibles thin-edged, and rather obtuse, the upper destitute of notch. The tarsus is of moderate length, rather stout, and distinctly scutellate; the toes large, especially the first, and the claws strong, compressed, arched, and acute. The plumage is always soft, loose, and full, especially on the hind part of the back; the wings rather short, concave, and rounded; the tail generally of moderate length, sometimes elongated, more or less arched, always narrow, and composed of twelve narrow feathers. The nostrils are rather small, roundish, and concealed by reversed bristly feathers. The tongue is short, narrow, sagittate at the base, with the tip terminated by four bristles. The œsophagus is narrow, without dilatation; the stomach roundish, somewhat compressed, its lateral muscles of moderate strength, its cuticular lining rugous; the intestine short, of moderate width, the cœca small and cylindrical. The digestive organs are thus not essentially different from those of the other families of the Cantatores. Plate XIII. Figs. 9, 10, 11, 12.

In the form of their bill and feet, and in having the nostrils covered by reversed bristly feathers, as well as in some of their habits, the larger Pari exhibit a considerable affinity to the Jays. Their bill approaches in form to that of the Sittinæ also, and their feet indicate a decided approximation of the two

families, which moreover agree in many of their habits. On the other hand, the Parinæ are still more closely allied to the Sylvianæ. Thus the transition from the Reguli to the smaller Tits is almost direct, and some of the Warblers, especially those of the genera Sylvicola and Jora, are just as much Tits as any thing else. The genera of which this family is composed seem to me to be Parus, Mecistura, Ixos, and perhaps Pachycephalus, for those which various authors have associated with them do not present characters indicative of sufficient affinity to authorise their admission into it. Indeed, the subfamily Parianæ of Mr Swainson, (properly Parinæ, Parus and not Paria being the generic name), is a most heterogeneous association, in which are brought together, to form a circle, birds belonging to the families of Myiotherinæ, Sylvianæ, and Parinæ. Thus, of its five genera, Setophaga, of which the bill is acknowledged to resemble that of a Muscicapa, certainly belongs to the Myiotherinæ or Flychasers; Sylvicola has been improperly separated from the Sylvianæ; Accentor, obviously is more a Saxicola or a Rubecula than a Tit; and Trichas, which completes the magic circle, has been stolen from among its friends the Warblers. Many really distinct genera are referred by him to these groups as sub-genera; while on the other hand, in a different circle, that of the Motacillinæ, in order to retain his favourite number five, he finds it necessary to tear away Anthus from Alauda, placing these two most intimately connected genera in separate families. In truth, it can only be by exaggerating, misrepresenting, and suppressing facts, that any system like that adopted by him can possibly be upheld.

As to the habits of the Parinæ, it is unnecessary to say much respecting them here, as they will receive sufficient illustration in treating of the different species. They inhabit forests, woods, and thickets, where they search for insects and larvæ among the foliage and in the crevices of the bark, and the axils of the branches, clinging to the twigs, and using every possible variety of attitude and gesture. Small seeds also form part of their food, and some of them occasionally perforate and open the hard pericarps of nuts and other fruits

A ~~and~~ although generally seen on the branches and twigs, where they move with the greatest ease, they sometimes betake them-

selves to the ground, where they advance by leaping. Their nests are large, formed of moss, lichens, and other textile substances, and well lined with feathers or other soft materials. Many species nestle in holes or crevices in trees, buildings or walls, and some, like Woodpeckers, scoop out cavities in decayed or even in fresh trees. Their eggs are generally numerous, and of a whitish colour, usually marked with brown or red spots. Species occur on both continents, and, although diminutive and essentially insectivorous, they do not require to migrate far southward in the winter, at which season they traverse the woods in large flocks. Their voice is loud and shrill, and their song consists of a few notes, which are rather singular than pleasant. They are capable of performing long flights, but in general their excursions are short, and their mode of flying rapid and undulated. Most of the species are usually so intent on searching for their food, that a person may approach quite close to them; and they are extremely active, lively, and courageous.

SYNOPSIS OF THE BRITISH GENERA AND SPECIES.

GENUS I. PARUS. TIT.

Bill short, straight, strong, sub-conical, its outlines convex, the point of the upper mandible destitute of notch and rather obtuse; toes strong; claws long, much arched, high, and tapering to an extremely acute point; wings rather short, concave, rounded, the first quill very small, the fourth and fifth longest, but only slightly exceeding those on each side; tail of moderate length, narrow, even, or a little emarginate, somewhat arched.

1. *Parus major. Greater Tit.* Head, fore part of the neck, a transverse band on its sides, and a longitudinal band on the breast and abdomen black; cheeks white; back yellowish-green; breast and sides yellow.

2. *Parus cœruleus. Blue Tit.* Upper part of the head light blue, encircled with white.

3. *Parus ater*. *Coal Tit.* Head, hind-neck and throat glossy bluish-black; sides of the neck and a patch on the nape, white.

4. *Parus palustris*. *Marsh Tit.* Head, hind-neck, and throat dull brownish-black; sides of the neck greyish-white; no white on the nape.

5. *Parus cristatus*. *Crested Tit.* Occipital feathers elongated, pointed, and slightly recurved, forming a conspicuous crest.

GENUS II. MECISTURA. MUFFLIN.

Bill very short, straight, strong, its outlines very convex, the point of the upper mandible destitute of notch and very acute; toes of moderate strength; claws long, little arched, high, and tapering to an extremely acute point; wings rather long, concave, rounded, the first quill very small, the fourth and fifth longest, and considerably exceeding those on each side; tail very long, narrow, graduated, and nearly straight.

1. *Mecistura ~~long~~caudata*. *Long-tailed Mufflin.* Head white, with a black band on each side, back black, scapulars and abdomen light red.

Genus I. PARUS. Linn. TIT.

Bill short, straight, subconical, generally strong, pentagonal at the base, much higher than broad, being considerably compressed, the point rather sharp: upper mandible with its dorsal outline convexly declinate, the ridge convex, the sides convex and deflected, the edges direct and overlapping, with a slight festoon toward the base, the point sharp when viewed laterally, but rather blunt when seen vertically, without notch or sinus; lower mandible with the angle short, of moderate width, and rounded, the dorsal outline ascending and more convex than the upper, the sides convex, the edges a little inflected, the tip rather acute; the gape-line straight.

The mouth very narrow; the upper mandible slightly concave within, with a central and two lateral prominent lines, the former divided at the base by a groove; the lower more concave, with a stronger median ridge. The posterior aperture of the nares is linear, margined with papillæ; the palate transversely concave. The pharynx is narrow, the œsophagus, which is of uniform diameter and moderate width, passes along the right side of the neck, as does the trachea; the stomach a rather strong gizzard, of an irregularly elliptical form, its lateral muscles thick and long, the lower not distinct from the right, the tendons rather large, the right muscle commencing much lower than the left, and extending proportionally beyond it; the cuticular lining longitudinally rugous. The intestine is short, rather wide; the duodenum being much wider than the œsophagus; the rectum much wider and moderately enlarged towards its extremity. The cœca very small and cylindrical. Plate XIII. Figs. 9, 10, 11, 12.

The general form is short and full; the body extremely short, as is the neck; the head large, roundish, convex anteriorly. The nostrils are small, round, in the fore part of the

short nasal membrane, and concealed by reversed stiffish bristle-tipped feathers. The eyes are also small; the eyelids feathered, their bare margin crenate. The aperture of the ears is large and roundish. The feet are of ordinary length, rather strong; the tarsus compressed, with seven very broad anterior scutella; the toes rather large, the first proportionally very large and stout, being with its claw as long as the middle toe; the anterior toes united as far as their second joint, the fourth or outer considerably longer than the second. The claws are long, much arched, extremely compressed, laterally grooved, high and tapering to an extremely acute point.

The plumage is extremely soft, loose and blended; the feathers of the upper part of the head rather compact and glossy; those about the base of the bill bristle-tipped; but there are no distinct bristle-feathers at the base of the upper mandible. The feathers of the back form a very long almost downy bunch; those of the rump are short, so that the tail appears as if it came off abruptly. The wings are of moderate length or rather short, concave, very broad, rounded, with nineteen quills; the first very short, being about a third of the length of the second, which is much shorter than the third, the fourth and fifth longest, but only slightly exceeding those on each side; the secondaries very long; all the quills narrow and rounded; the third, fourth, fifth, and sixth with the outer web cut out towards the end. The tail is of moderate length, or rather long, narrow, even or a little emarginate, somewhat arched, of twelve narrow, rounded feathers.

The Tits are all of very small size, the largest not exceeding a House Sparrow in bulk, and some of them not more than four inches in length. They are essentially insectivorous, but many also feed on seeds of various kinds, and some split open a nut or other hard pericarp by repeated strokes of their bill. Flesh of any kind, especially carrion and that of dead birds, they often pick, and some of them, becoming familiar in severe weather, search the neighbourhood of houses for fragments of bread, fat, and other articles of food. Their favourite haunts however are the forests, woods, and plantations, especially those of fir, pine, larch, oak, birch, and alder, the branches and

twigs of which they search for insects, aphides, pupæ, and larvæ, hopping and fluttering about with surprising agility, using almost every imaginable attitude, often clinging in an inverted position, and, when grasping a branch transversely, pivoting their body from side to side in a singular manner. Their flight is direct, executed by rapid flaps, not usually protracted, but capable of being extended on occasion, when it becomes undulated and rapid. They utter various shrill cries, and when feeding generally emit a sharp note at intervals. They are petulant, excitable, and courageous, defend themselves with energy, and do not hesitate to attack much larger birds. They nestle in holes in walls or trees, on branches of trees, or in cavities in the ground; lay numerous eggs, which are of a white colour spotted or dotted with red or brown. The species which reside in the forests move about in troops, often associating with other species of the same genus, as well as with Kinglets, Creepers, and Nuthatches.

Although the Jays are comparatively large birds, they bear a great affinity to the Tits, both in structure and habits. The bill of Parus major is extremely similar to that of Garrulus cœruleus, and blue and grey tints prevail in both genera. The resemblance of the Tits to the Nuthatches, in form, colour, and habits, is much more striking; and their affinity to the Certhiæ and Reguli, although much less apparent, is yet not difficult to be traced. With the genus Mecistura they are also more intimately allied than with any other. Many authors consider them as closely connected with the Sparrows, Finches, and other genera of the Deglubitores, with which they associate them under the common names of Conirostres, Granivori, and others of similar import; but their affinity to these birds is very remote, insomuch that a person practically acquainted with them might well ~~marvel~~ wonder at so unnatural an association, did he not reflect that scarcely any thing is too absurd to receive the approbation of some ~~ornithologists~~ systematists. The genus *Ixos* seems to me to belong to this group; but *Parus pendulinus*, and *P. biarmicus* of the older authors belong to a different order, the latter being decidedly a Husker.

Five ~~Six~~ species occur in Britain, and are permanently resident.

1. PARUS ~~FRINGILLAGO~~ major Linn. THE ~~OX-EYE~~ Greater TIT.

GREAT TITMOUSE. OX-EYE. GREAT BLACK-HEADED TOM TIT. BLACK-CAP.



FIG. 181.

Parus major. Linn. Syst. Nat. I. 341.
Parus major. Lath. Ind. Orn. II. 562.
Great Titmouse. Mont. Orn. Dict.
Mésange Charbonnière. Parus major. Temm. Man. d'Orn. I. 287.
Great Titmouse. Parus major. Selb. Illustr. I. 233.
Parus major. Great Titmouse. Jen. Brit. Vert. An. 121.

The head, fore part of the neck, a transverse band on its sides, and a longitudinal band on the breast and abdomen, black; cheeks white; back yellowish green; breast and sides yellow.

MALE.—The Greater Tit, although the chief of its clan, is a small bird, not so large as a Robin, but of a stoutish form, active, lively, and courageous. Its body is short and ovate, the neck short, the head of moderate size and oblong. The bill is short, straight, sub-conical, being but little compressed; both mandibles with their dorsal outline a little convex, that of the lower more so, the ridge obtuse, the sides convex, the edges sharp, the tips rather obtuse but thin-edged. Both man-

dibles have internally a median elevated line, that of the upper divided at the base. The palate is flat; the posterior aperture of the nares linear, and edged with papillæ. The tongue is short, of nearly equal breadth in its whole length, sagittate at the base, the tip truncate and terminated by four bristles. The œsophagus is of nearly uniform diameter, without dilatation, of moderate width, two inches long; the proventriculus with short glandules. The stomach is roundish, a little compressed, seven-twelfths long, its muscular coat rather thin, its tendons round, the cuticular lining rugous. The intestine is six inches long, of moderate width; the cœca cylindrical, a twelfth and a half long.

The eyes are small, their aperture measuring a twelfth and a half; that of the ears two and a half twelfths. The feet are of moderate length, and rather stout; the tarsus compressed; with seven anterior scutella; the toes rather large, compressed; the first much stouter, with eight scutella, the second with ten, the third thirteen, the fourth twelve scutella; the second considerably shorter than the fourth. The claws are long, much compressed, laterally grooved, arched, very acute, that of the hind toe much larger.

The plumage is very soft and blended, more dense and glossy on the head, downy on the rump and middle of the back, where it is very much elongated. The wings are of moderate length, curved, broad, much rounded, of nineteen quills; the first very short, the second four twelfths of an inch shorter than the third, which is one twelfth shorter than the fourth, and not quite so long as the fifth, which is but slightly longer than the sixth; the third, fourth, fifth, and sixth, are slightly cut out on the outer web. All the quills are rounded, but the secondaries have a slight acumen. The wings when closed extend to one third of the length of the tail. The tail is rather long, slightly rounded, of twelve narrow slightly arched, rounded feathers.

The bill is black, its edges dusky horn-colour. The irides are brown. The tarsi and toes greyish-blue, the claws dark-brown. The feathers of the head and fore part of the neck are black, glossed with blue; that colour also forms a transverse

band on the side of the neck, behind the white patch on the cheek and ear-coverts, and extends along the middle of the thorax in a broadish band, which expands on the abdomen. The posterior cervical and anterior dorsal feathers are yellowish-green, that colour fading into pale greyish-blue on the hind part of the back. There are a few white feathers on the nape. The smaller wing-coverts are pale blue, the secondary coverts tipped with white; the quills dark greyish brown, margined internally with white, externally with pale blue, excepting the third, fourth, fifth, and sixth, which are white on the abbreviated part, and the inner three which are yellow; all the quills are slightly tipped with white, except the first three. The tail-feathers are dark greyish-brown, their outer webs greyish-blue; the outer web and tip of the lateral feather, and a spot on the tip of the next, white. The sides are greenish-yellow; the lower tail-coverts and wing-coverts white. The concealed parts of the plumage dark.

Length to end of tail $6\frac{1}{4}$ inches; extent of wings 10; wing from flexure 3; tail $2\frac{7}{12}$; bill along the ridge $\frac{5}{12}$, along the edge of lower mandible $\frac{7}{12}$; tarsus $\frac{1}{1}\frac{1}{2}$; hind toe $\frac{4\frac{1}{2}}{12}$, its claw $\frac{5}{12}$; second toe $\frac{4}{12}$, its claw $\frac{2\frac{1}{2}}{12}$; third toe $\frac{6}{12}$, its claw $\frac{4}{12}$; fourth toe $\frac{4\frac{1}{2}}{12}$, its claw $\frac{2\frac{1}{2}}{12}$.

Female.—In the female the distribution of colours is the same. The yellow of the breast and sides is less bright, the greyish-blue of the rump less pure, the black band on the breast duller and narrower, and the black less extended on the abdomen.

Length to end of tail $5\frac{3}{4}$ inches; extent of wings $9\frac{1}{2}$.

Variations.—In adult birds I have not observed any remarkable deviations from the colours as above described.

Changes of Plumage.—The changes caused by the action of the atmosphere and friction are not very perceptible in this or the other species, the tints being merely rendered duller, and the light edgings of the quills obliterated.

Habits.—This species, which, like all the rest, is very active

and lively, seldom appears in greater numbers than two or three, and is not only less social than the other Tits with respect to its own kind, but also with respect to its congeners; not, however, that it does not occasionally keep company with some of them. In winter it frequents woods and thickets, not seeming to give a decided preference to any particular species of trees, and often makes its appearance in gardens, where however it does not take up its residence. Its food consists of insects, pupæ, larvæ, buds, and seeds of various kinds, in search of which it sometimes betakes itself to the ground. It is chiefly on trees however that it is seen, and there it hops and skips with great alacrity, manifesting a constant cheerfulness, standing and hanging in every variety of position, and continually fluttering about in search of food in the crevices of the bark, and among the buds and leaves. Its flight is usually short, being merely from tree to tree, and is performed by a continuous flutter of the wings; but when necessary it can accomplish a pretty extended excursion, and then it flies with considerable undulation. It is not particularly shy, but may be easily approached within shot, although it is rather more observant of intruders upon its haunts than the other species of the genus, which, like the Kinglets, are remarkably inattentive to appearances of danger.

The ordinary cry of this beautiful bird is a loud cheep, followed by a harsh chatter which may be supposed to be represented by *chir*, *r*, *r*, *r*, *r*, *ik*. In spring and the early part of summer its notes bear some resemblance to the sounds produced by a file in sharpening the teeth of a saw, and may be syllabled into *tee-ta*, *tee-ta*, *tee-ta*, *tee-ta*, *tee-ta*. They are very loud for a bird of so small a size, and may be heard distinctly, in calm weather, at the distance of about eight hundred paces.

"Its spring notes," Mr Hepburn writes me, "are first heard about the beginning of March, and continued till the middle of May. In April 1839 I pursued one of these birds through a narrow plantation. The first note I heard was that of *chur-r-r*, then *chir-r-r*; it then imitated very exactly the twink of the Chaffinch, the alarm notes of the Robin and Wren, and the doleful ditty of the Yellow Bunting; next it produced a note

of its own, which it repeated incessantly, as it sported amongst the boughs of an old ash; then it seemed to forget this note, and emitted another, which also was soon forgotten; and again, as if tired of its own compositions, it essayed those of its more musical brethren. This Titmouse was a great nuisance to me when I began to study ornithology, often leading me astray by his silly productions, which I thought were the notes of some bird new to me."

I have remarked, in speaking of the affinities of the genus, that the Tits are nearly allied to the Jays. This species, being [illegible] exhibits the relationship in a more remarkable de-

the wings between my finger and thumb, it no sooner gave the cry of alarm, than the male alighted upon the top of my head, and seizing my hair with his bill shook it in the most furious manner. This he did twice. finding, however, that it had not the desired effect, he actually perched upon the back of my hand, and caught me by the fore-finger, which he pinched very severely. This parental affection of the old fellow for his offspring softened my heart, and prevented me from killing him. It was the most beautiful bird and perfect specimen I had ever seen."

usually, the nest is composed of moss, and lined with hair and feathers. One in my possession, taken from the cavity of a tree, is rather bulky, but loosely constructed; its base and exterior formed of moss and fragments of decayed leaves, the next layer of fibres of inner bark, flaxen filaments, some worsted threads, a quantity of ravelled cotton thread, and hair of various kinds; while the lining is of wool, horse hair, bristles, and large feathers. The eggs are about six, of an elongated oval form, nine twelfths of an inch long, seven twelfths broad, bluish-white, marked with roundish and oblong pale red spots and dots. As Montagu has remarked, they are "so exactly like those of

A nest, from Oxfordshire, is very large, being six inches in external, two and three fourths in internal diameter. It is composed of hypna, loosely held together with slender stems and leaves of grasses, and lined with a great mass of wool, down of the rabbit or hare, and hair of various other animals, without feathers.

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p. 429.

© A remarkable example of this has been related to me by my friend Mr Durham Weir. "Whilst residing with my aunt in the parish of Legerwood, Berwickshire, in the summer of 1842, I was witness to a striking fact in regard to the fond attachment of birds to their young. Having taken out of a nest, which was built between the breast of the wall of the window of the second storey of her house, the steps having been blown down, and allowed to remain in that situation, one of the young of the ox-eye tits, and whilst holding it by the wing

sounds produced by a file in sharpening the teeth of a saw, and may be syllabled into *tee-ta*, *tee-ta*, *tee-ta*, *tee-ta*, *tee-ta*. They are very loud for a bird of so small a size, and may be heard distinctly, in calm weather, at the distance of about eight hundred paces.

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I have remarked, in speaking of the affinities of the genus, that the Tits are nearly allied to the Jays. This species, being the largest, exhibits the relationship in a more remarkable degree than the rest, not only in form, but also in manners. Thus, it is in a manner omnivorous, for, not content with seeds, insects, and larvæ, it eats the flesh of birds or quadrupeds, and, according to many respectable writers, sometimes attacks small or young birds, and splits their skull with its bill. Seeds of cereal plants and others, it husks by repeated strokes of the bill, and therefore no more resembles the Deglubitores in this respect, than it does in its organization. When wounded and laid hold of, it bites most vigorously; and should its nest be attacked by other birds, it defends it with great energy.

The nest is placed in the hole of a wall, or in a cavity formed expressly in the wood of a decayed tree. Mr Selby states that he has "seen it repeatedly engaged in this task, and admired the rapidity with which the work advanced." Montagu has known it "deposit its eggs in the hole of a decayed tree upon the rotten wood, without the least appearance of a nest;" but, usually, the nest is composed of moss, and lined with hair and feathers. One in my possession, taken from the cavity of a tree, is rather bulky, but loosely constructed; its base and exterior formed of moss and fragments of decayed leaves, the next layer of fibres of inner bark, flaxen filaments, some worsted threads, a quantity of ravelled cotton thread, and hair of various kinds; while the lining is of wool, horse hair, bristles, and large feathers. The eggs are about six, of an elongated oval form, nine twelfths of an inch long, seven twelfths broad, bluish-white, marked with roundish and oblong pale red spots and dots. As Montagu has remarked, they are "so exactly like those of

another, from Oxfordshire, is very large, being six inches in external, two and three fourths in internal diameter. Its compound of hypna, loosely held together with slender stems and leaves of grasses, and lined with a great mass of wool, down of the rabbit or hare, and hair of various other animals, without feathers.

the Nuthatch as not to be distinguished." Indeed the Nuthatch is most intimately allied to the Tits in more important matters, both its form and habits being very similar.

The Great Titmouse is generally distributed in the wooded and cultivated districts, both in England and in Scotland; but is rare in the northern parts of the latter country. It is resident with us, but shifts about from place to place in the winter season. On the Continent it is said to occur as far north as Norway, Sweden, and Siberia, and to extend to its southern boundaries.

Young.—When fully fledged, the young resemble the adult, but have the tints much duller, and the dark medial band on the breast less extended.

Remarks.—All the Tits have a kind of broad festoon on the edge of the mandible, beneath the nostrils, and this species, being the largest, shews it more conspicuously.

Linn.

2. PARUS CŒRULEUS. THE BLUE TIT.

BLUE TITMOUSE. TOMTIT. BLUE-CAP. BLUE-BONNET. HICK-MALL. BILLY-BITER. OX-EYE.



Fig. 182.

Parus cœruleus. Linn. Syst. Nat. I. 341.
Parus cœruleus. Lath. Ind. Orn. II. 566.
Blue Titmouse. Mont. Orn. Dict.
Mésange bleue. Parus cœruleus. Temm. Man. d'Orn. I. 289.
Blue Titmouse. Parus cœruleus. Selb. Illustr. I. 235.
Parus cœruleus. Blue Titmouse. Jen. Brit. Vert. An. 122.

Upper part of the head light blue encircled with white, a band round the neck, and the spaces before and behind the eye of a duller blue, the cheeks white, the back light yellowish-green, the lower parts pale greyish-yellow, the middle of the breast dull blue.

Male.—The Blue Tit is the most familiar, perhaps the most lively species of the genus, and by many is considered as the most beautiful. It is of a remarkably short and compact form, its head large and rounded, its bill very short, strong, compressed, both its outlines convex, the ridge blunt, the sides convex, the edges of the lower mandible a little inflected, the tips rather obtuse. Both mandibles are concave within, the upper with a central prominent line, which is grooved at the base, two lateral ridges, and four grooves, the lower also with a central prominent line. The œsophagus, Pl. XIII. Fig. 9,

b c d, is an inch and a half long, its greatest diameter nearly a twelfth and a half; the stomach, Fig. 10, irregularly elliptical, compressed, scarcely six twelfths long; the intestine, *f g h i j*, five inches and a quarter, the diameter of its duodenal portion a twelfth and a half, the cœca, Fig. 11, one twelfth long, and three fourths of an inch from the extremity; the rectum two twelfths in width, and enlarging to three twelfths.

The eyes are of moderate size, the eyelids feathered. The aperture of the ear large. The tongue short, emarginate and papillate at the base, flat, horny, and thin-edged towards the tip, which is abrupt, and terminated by four bristles. The feet are rather short and strong; the tarsus with seven anterior scutella; the toes strong, the first much stouter, the three anterior united as far as the second joint, the two lateral nearly equal, the first with six, the second with eight, the third twelve, the fourth ten scutella. The claws arched, much compressed, deep, laterally grooved, acute.

The plumage is soft, blended, and tufty, especially that of the back. The wings are of moderate length, rounded, of nineteen quills, which are decurved; the primaries rounded, the first less than half the length of the second, the fourth and fifth equal and longest, the third and sixth equal and slightly shorter, the second as long as the eighth. The tail is rather long, narrow, a little decurved, and slightly emarginate, of twelve narrow, weak feathers, which are rounded and acuminate.

The bill is dusky, its edges horn-colour. The iris brown. The feet greyish-blue, the claws brownish. The upper part of the head is light blue; the anterior part of the forehead, and a band encircling the head, white. A line of dusky blue passes from the bill to the eye, and another from it to the occiput, where it meets a band of dark blue, which curves behind the auriculars, and meets on the throat, which is blackish-blue. The cheeks are white. Behind the blue collar, the back of the neck is bluish-white. The back is pale yellowish-green, tinged with blue, the rump lighter and faintly mottled with whitish. The smaller wing-coverts are light blue, the secondary coverts the same, tipped with white; the quills, primary coverts, and alula, are greyish-brown, broadly margined ex-

ternally with light blue, internally with whitish; the first two primaries without the blue edging, the next five white on the edge towards the end, the secondary quills tipped with white. The tail is light blue, the feathers becoming tinged with dusky towards the tip, the outer with its margin white. The fore-neck, breast and sides are pale greenish-yellow, the middle of the breast dull blackish-blue, the abdomen whitish. The concealed part of the plumage is blackish-blue.

Length to end of tail $4\frac{3}{4}$ inches; extent of wings $7\frac{3}{4}$; wing from flexure $2\frac{1}{2}$; tail $2_{\frac{2}{12}}$; bill along the ridge $_{\frac{5}{12}}$, along the edge of lower mandible $_{\frac{4}{12}}$; tarsus $_{\frac{9}{12}}$; first toe $_{\frac{4}{12}}$, its claw $_{\frac{4}{12}}$; second toe $_{\frac{3\frac{1}{2}}{12}}$, its claw $_{\frac{2\frac{1}{2}}{12}}$; third toe $_{\frac{5\frac{1}{2}}{12}}$, its claw $_{\frac{3\frac{1}{2}}{12}}$; fourth toe $_{\frac{4}{12}}$, its claw $_{\frac{2\frac{1}{2}}{12}}$.

Female.—The female is a little smaller than the male, and much less brightly coloured, the blue tints being tinged with grey, the yellow of the lower parts fainter and less pure, and the dark patch on the breast of less extent.

Length to end of tail $4_{\frac{7}{12}}$ inches; extent of wings $7\frac{1}{2}$.

Variations.—Individuals vary considerably as to size. Those above described were "fine specimens," but those of somewhat less dimensions are more frequent. The tints also vary in depth and purity; but I have not met with any "accidental" changes of colour.

Changes of Plumage.—In the end of autumn, as in the other species, the plumage is complete and as described; but towards the period of moulting it fades, often in a very remarkable manner.

Habits.—About the middle of autumn, when the cares and pleasures of rearing their young are over, the Blue Tits are seen to approach the houses, and resort to the gardens and orchards. Some of them, it is true, reside in such places all summer; but by much the greater number are then dispersed among the woods and thickets. There it is, perched on a twig of the apple-tree, not standing, for you rarely can see it sta-

tionary for a moment, but frisking about with a jerking motion, searching all the little chinks and crannies, pecking at the back of the leaves, or among the young buds, now hanging with its back downward, now bobbing on the top branch, anon pivoting from side to side, erecting the feathers of its head, and churring its little objurgatory cry. It is obviously a pert, audacious, and irritable little thing. Now it flies to the ground, picks the seeds of the chickweed and other plants, or feasts on the peas, boldly advancing among the sparrows, and little heeding your presence. If you happen to be sulky or moody, look on; you cannot fail to be cheered and soothed by the sight; so lively, merry, and frisky a creature, must needs divert you; and, be sure, you will be more innocently employed in watching it than in admiring the most graceful figurante displaying her marvellous acquirements to a crowd of cockneys. Tom-tit is no actor, but an original, and a very clever one withal.

In winter it may be occasionally seen about the farm-yard, where it finds, when other food fails, a wholesome supply of oat or wheat seeds, which it jerks from their husks, with its wedge-like bill. It also frequents the doors and dunghills, to pick up a bit of suet, or nibble a morsel of flesh; and where carrion is kept, it is often seen to help itself to a share. Often at this season too you may find it clinging to a wall, and digging at the loose plaster, to get at the insects or pupæ concealed behind. It will even make occasional excursions into the stubble near hedges or woods; and, in short, being in a manner omnivorous, it manages to get through the cold part of the year as well as its neighbours. It is accused of attacking other small birds, and splitting their skulls; but I have neither seen it do so, nor met with any person who has; and we know how, when an assertion of any kind, however incredible, has been made, all the ornithologists catch the cry. It reposes in holes in walls, or among ivy, and seems to suffer less in severe frosts than most birds.

In spring, it still makes excursions into gardens, where it often demolishes the expanding buds of trees, probably to obtain the larvæ contained in them. At this season, it becomes rather noisy, and emits a variety of cries, of which the most

common and most remarkable may be syllabled into something like *chicka*, *chicka*, *chicka*, *chee*, *chee*. It places its nest in the chink of a wall, or under the eaves or thatch, or in a hole in a tree. It is composed externally of moss, grass, and wool, and lined with hair and feathers. The eggs are numerous ; some authors having made them amount to twenty, while others allege that they are not more than from six to eight. Mon-

p. 435.

© Like several other small birds, this species sometimes nestles in very insecure places. Mr. R. D. Duncan has favoured me with the following instance:- "In the year 1836, the nest of a pair of Titmice was discovered in the shaft of a pump-well, situated at the foot of our garden. Although every time water was drawn their nest was drenched, and partly carried away, still they persevered in building, endeavouring to fix their nest to the piston. Gladly would we have let them remain, had they not continually kept the water in a muddy state, on account of the materials which they used. After their expulsion from the well, they made choice of a hole, in an old wall, at the back of our house, for their future residence. One day when passing the place where their nest was, I was not a little amused on hearing a loud hissing, somewhat like that of a cat, adder, or weasel. On looking in at the small crevice in the wall, I soon perceived from whence the sound proceeded. There sat the agitated Titmouse, still employing this vociferous method of endeavouring to rid itself of my an-

[illegible] having been rubbed off.

Mr Knap, in his justly popular Journal of a Naturalist, has the following interesting notice respecting this species. "I was lately exceedingly pleased in witnessing the maternal care and intelligence of this bird ; for the poor thing had its young ones in the hole of a wall, and the nest had been nearly all drawn out of the crevice by the paw of a cat, and part of its brood devoured. In revisiting its family, the bird discovered a portion of it remaining, though wrapped up and hidden in the tangled moss and feathers of their bed, and it then drew

tionary for a moment, but frisking about with a jerking motion, searching all the little chinks and crannies, pecking at the back of the leaves, or among the young buds, now hanging with its back downward, now bobbing on the top branch, anon pivoting from side to side, erecting the feathers of its head, and churring its little objurgatory cry. It is obviously a pert, audacious, and irritable little thing. Now it flies to the ground,

noyance. When a family made its appearance in this dwelling, the parent birds were so anxious in supplying the wants of their little ones that I have frequently stood so near, that as the birds entered and went from the nest, I might have caught them with my hands, or at least have obstructed their progress by placing them over the cavity in which their nest was laid. In 1837, they again attempted to build in the well, and renewed their efforts to fix their station there every succeeding year, until 1841."

so, nor met with any person who has; and we know how, when an assertion of any kind, however incredible, has been made, all the ornithologists catch the cry. It reposes in holes in walls, or among ivy, and seems to suffer less in severe frosts than most birds.

In spring, it still makes excursions into gardens, where it often demolishes the expanding buds of trees, probably to obtain the larvæ contained in them. At this season, it becomes rather noisy, and emits a variety of cries, of which the most

common and most remarkable may be syllabled into something like *chicka*, *chicka*, *chicka*, *chee*, *chee*. It places its nest in the chink of a wall, or under the eaves or thatch, or in a hole in a tree. It is composed externally of moss, grass, and wool, and lined with hair and feathers. The eggs are numerous ; some authors having made them amount to twenty, while others allege that they are not more than from six to eight. Montagu states that he never found more than the latter number, and Mr Neville Wood considers twelve as the maximum ; but, on this subject I cannot speak with certainty. They are of a regular oval form, averaging in length seven and a half twelfths, and in breadth six, of a slightly reddish-white colour, marked all over with irregular small spots of light red. The female will sometimes remain on the nest even when a person introduces his hand, which it pecks, emitting a hissing noise, and the male displays much courage in defence of the young, attacking birds of prey, magpies, thrushes, and other suspicious strollers. In these respects, it greatly resembles the Nuthatch, which is closely allied to this family.

The ordinary flight of the Blue Tit is direct and rapid, being executed by continued quick flaps ; but when protracted, it is somewhat undulated.

From the habit which this species frequently exhibits of clinging to walls for the purpose of seizing the insects that harbour in them, its claws are sometimes much worn. A very remarkable instance of this I have at present in my left hand, being an individual presented to me by Mr Carfrae, in which all the claws are quite abrupt or truncated, a large portion of their extremities having been rubbed off.

Mr Knap, in his justly popular Journal of a Naturalist, has the following interesting notice respecting this species. "I was lately exceedingly pleased in witnessing the maternal care and intelligence of this bird ; for the poor thing had its young ones in the hole of a wall, and the nest had been nearly all drawn out of the crevice by the paw of a cat, and part of its brood devoured. In revisiting its family, the bird discovered a portion of it remaining, though wrapped up and hidden in the tangled moss and feathers of their bed, and it then drew

the whole of the nest back into the place from whence it had been taken, unrolled and resettled the remaining little ones, fed them with the usual attentions, and finally succeeded in rearing them. The parents of even this reduced family laboured with great perseverance to supply its wants, one or the other of them bringing a grub, caterpillar, or some insect, at intervals of less than a minute through the day, and probably in the earlier part of the morning more frequently; but if we allow that they brought food to the hole every minute for fourteen hours, and provided for their own wants also, it will admit of perhaps a thousand grubs a day for the requirements of one, and that a diminished brood; and gives us some comprehension of the infinite number requisite for the summer nutriment of our soft-billed birds, and the great distances gone over by such as have young ones, in their numerous trips from hedge to tree in the hours specified, when they have full broods to support."

When searching for food upon the twigs of trees, creeping, clinging, jerking, and fluttering, in the society of its fellows, it emits a very feeble and shrill cheep at intervals. If alarmed, or disposed to fly to another tree, it may be seen perching for a moment, raising itself up, and erecting the feathers of its head. Emitting a cry in some degree represented by the syllable *chir-r-r-r*, it then bounces off, and alights elsewhere, to pursue its avocations. In winter it is very frequently seen in hedges, whether high or low, and occasionally alights on the ground. I am not inclined to think that it eats the buds of trees and shrubs at that season, for, on opening its stomach, I have commonly found it to contain slender white larvæ about four twelfths of an inch long.

"Of all the birds which frequent our woods during winter," says Mr Hepburn, "the beautiful Blue Tit is my chief favourite. He seems to have no leisure time, but is ever on the move, searching for food, and in so doing conferring important benefits on man. At present (the beginning of April) they seem to frequent the elm in preference to all other trees. For four successive days in the middle of December last, five of these birds were sporting all day long on a row of tall old wil-

low trees near our garden. They frequently opened and shut their wings like the Hedge Chanter. When sauntering alone through the pathless copse, where the loveliest flowers are spread around, and no sounds are heard save the hum of insects or the murmur of the brook, the wanderer is apt to indulge in solemn thoughts and sylvan dreams; but the joyous *chir-r-r* of the Blue Tit recalls his scattered thoughts, and he beholds with admiration its singular and often graceful postures, as it examines the very extremities of the smallest twigs. It has just finished its survey of the upper bark of that branch of the old moss-clad oak, and now poising itself on the very edge it examines the lower surface, when perceiving a likely crevice, it utters a cry of joy, springs into it, and instantly begins its attack. Now with great labour it has disengaged a piece of rotten wood, and tries to separate the larvæ from it; but finding the cavity too small for this purpose, mounts aloft, fixes the piece of wood between its claws, and pecks until its efforts are crowned with success. With a joyous cry it again descends, and continues picking out the larvæ, which are now exposed, until, satisfied that none remain, it bounds off to rejoin its companions. When the ground is covered with snow, the Blue Tits flock to our garden and stack-yard. In the former, the fruit trees and the crannies in the fruit-wall attract their attention; and in the latter they cling to the thatch and sides of stacks. Even in open weather, I have observed this bird examining the horse droppings on the road. Several years ago I saw it descend on the pieces of beef and mutton exposed at the door of a butcher's shop in Haddington. On the 8th of May (1838) I observed a pair building in a pollard ash in one of our fields. When the young are abroad, they even frequent our closely switched hedges, but their favourite haunts are thickets, copses, tall hedge-rows, gardens, and woods."

The Blue Tit, with the Coal Tit, the Greater Tit, and the Gold-crest, are among the few birds that in winter may be found traversing in bands the woods and copses, as well as the patches of juniper, furze, or broom, of the wildest parts of the hilly regions of the country. It is generally dispersed, permanently resident, and very abundant in most districts.

Mr Weir has favoured me with the following observations relative to the feeding of its young:—"On Tuesday morning, the 4th of July 1837, at a quarter past two o'clock, I went out to observe the Titmice feeding their brood. It was a most delightful and calm summer morning. It is then, and only then, that we can form any conception of our British songsters, for then only they pour forth their notes with redoubled vigour. With their melody the whole air seemed to resound. About a quarter past four o'clock, this music so enchanting gradually died away, and all was again mute. In life, however, our pleasures are often intermixed with pain, for the midges, those poisonous little insects, gave me much annoyance.

"At half-past three o'clock in the morning, the birds began to feed their young, which were six in number. From that time until four o'clock they fed them twelve times, and from four to five o'clock twenty-five times. From five to six o'clock they fed them forty times, which was astonishing, as, during the whole of this hour they flew to a plantation at the distance of more than one hundred and fifty yards from their nest. From six to seven o'clock they fed them twenty-nine times. During a part of this hour they flew in every minute. From seven to eight o'clock they fed them twenty times. During this hour it rained very heavily. From eight to nine o'clock they fed them thirty-six times, and from nine to ten o'clock forty-six times. During a part of this last hour, they fed them twelve times in five minutes. From ten to eleven o'clock they fed them thirty-seven times, and from eleven to twelve o'clock thirty-nine times, and from twelve to one o'clock twenty-four times. From one to two o'clock they fed them twenty-three times, and from two to three o'clock thirty-four times, and from three to four o'clock eighteen times. From four to five o'clock they fed them twenty-nine times, and from five to six o'clock twenty-five times, and from six to seven o'clock twenty times, and from seven to half-past eight o'clock twenty-five times. They now stopped, after having been almost incessantly engaged for nearly seventeen hours in their labours of love, and after having fed their young 475 times! They appeared to feed them solely with caterpillars; sometimes they brought in a

single large one, and at other times two or three small ones. It is therefore impossible to say how many had been carried in by them during the day." If we admire the industry and unwearied perseverance of these little birds, stimulated and sustained by parental affection, we may, I think, still more admire the patience and resolution of their observer.

Young.—When fully fledged, the young have the bill light yellowish-brown, the feet dull bluish-grey, the claws like the bill. The upper part of the head, a band from the eye to the hind-neck, and a ring on the neck, broader behind, are dull light bluish-grey ; part of the forehead, a streak over the eye, extended to the occiput, where it meets that of the other side, a band across the lower part of the hind-neck, the cheeks, throat, and lower parts dull yellow, tinged with grey on the sides and abdomen. The back and scapulars are light green, with a grey tinge; the quills, their coverts, and the tail-feathers, are greyish-blue ; the secondary coverts tipped with yellow, the primaries narrowly edged with greyish-white, the secondaries broadly with light-green, and tipped with yellowish-white.

Progress toward Maturity.—After their first autumnal moult, the young resemble the adult, as is the case with all the other species.

Linn.

3. PARUS ATER. THE COAL TIT.

Cole Titmouse. COAL TITMOUSE. Blackcap.



FIG. 183.

Parus ater. Linn. Syst. Nat. I. 341.
Parus ater. Lath. Ind. Orn. II. 564.
Cole Titmouse. Mont. Orn. Dict.
Mésange petite charbonnière. Parus ater. Temm. Man. d'Orn. I. 288.
Cole Titmouse. Parus ater. Selb. Illustr. I. 239.
Parus ater. Cole Titmouse. Jen. Brit. Vert. An. 123.

The head and neck glossy bluish-black, with a broad patch of white on the cheek and side of the neck, and a large spot on the nape; back grey, breast white, hind parts brownish-yellow; two white bars on the wing.

MALE.—The Coal Tit is the smallest British species of the genus, and indeed the least of our native birds excepting the Mufflin, the Kinglets, and the Creeper. In form it is so very similar to the Blue Tit and other species, as to render a minute description unnecessary. The bill is longer and more slender than that of the Blue Tit, and although more resembling that of the Great Tit, proportionally narrower. The upper mandible is internally concave, but flattened, with a central prominent line, which is also seen in the lower. The tongue is nearly linear, thinnish, short, subsagittate at the base, abrupt at the end, with four terminal bristles, the two middle ones longer. The œsophagus, Plate XIII. Fig. 12, *a b c d*, is an

inch and a half long; the stomach, *d e f*, roundish, compressed, five twelfths of an inch in length; the intestine, *f g h i j*, four inches and three fourths long, the diameter of the duodenal portion a twelfth and a half. The œsophagus is of uniform width, its diameter one twelfth of an inch, the proventriculus little larger; the posterior muscle of the stomach is longer than the anterior, the lower muscle distinct, and the inner coat longitudinally rugous; the cœca, *i*, only half a twelfth long.

The plumage is blended, being soft and tufty, the feathers of ordinary length, excepting on the back, where they form a downy bunch of extraordinary length, as in most of the other species; those on the upper part of the head rather compact and glossy. The wings are semiovate, convex, rounded; the quills nineteen, slender, the secondaries rather short; the first quill about a third of the length of the fourth and fifth, which are longest, the third and sixth very little shorter, the second three-twelfths of an inch shorter than the third; the third, fourth, fifth, and sixth slightly cut out externally. The wings when closed reach to the middle of the tail, which, on account of the comparative shortness of the rump feathers seems to come off abruptly, and is longish, slender, a little emarginate, of twelve narrow, rounded, slightly arched feathers.

The bill is black, with the edges inclining to horn-colour. The iris dusky. The feet and claws livid blue. The head and neck are deep black, the former glossed with blue; a patch of white on each side covers the cheek and side of the neck, and there is another on the back of the neck. The back is yellowish-grey, its hind part brownish-yellow; the breast and belly greyish-white, shaded on the sides and behind into brownish-yellow. The quills and tail are brownish-grey, the former margined externally with yellowish-grey, internally with greyish-white; the latter with greenish; the secondary coverts and the first row of small coverts tipped with greyish-white. The concealed part of the plumage is blackish-blue.

Length to end of tail $4\frac{1}{4}$ inches; extent of wings $7\frac{4}{12}$; wing from flexure $2\frac{4}{12}$; tail $1\frac{0}{12}$; bill along the ridge $\frac{4}{12}$, along the edge of lower mandible $\frac{5\frac{1}{2}}{12}$; tarsus $\frac{8}{12}$; first toe $\frac{4}{12}$, its claw $\frac{4}{12}$; second toe $\frac{4}{12}$, its claw $\frac{2}{12}$; third toe $\frac{5}{12}$, its claw $\frac{3}{12}$; fourth toe $\frac{4}{12}$, its claw $\frac{2\frac{1}{2}}{12}$.

Female.—The female does not differ from the male in any very perceptible degree, and cannot be distinguished otherwise than by dissection.

Length to end of tail $4\frac{1}{4}$ inches; extent of wings $7\frac{5}{12}$.

Changes.—When the plumage is new, towards the beginning of winter, all the feathers of the back are tinged at the tips with brownish-yellow; but in summer when the tips are worn that part is bluish-grey. At the former period the feathers of the lower part of the fore-neck are tipped with white, but at the latter they are of a uniform black.

Habits.—The Coal Tit, partly on account of its diminutive size, and partly from its haunts, is little apt to attract the notice of the urban admirer of nature. It is seldom met with in gardens, or in woods in the immediate vicinity of houses, although I have several times seen it there, its favourite abode being in forests and plantations of fir and pines, where it wanders about in troops, often composed of a great number of individuals. In England it is not so abundant as the Blue Tit, or even as the Marsh Tit; but in Scotland, where the wild woods and plantations are in many districts of vast extent, it is much more numerous than either. Indeed, there is scarcely a fir wood in any part of that country, in which it is not to be met with.

Not only is the Coal Tit a social bird with respect to its own species, but its flocks are very rarely unmixed with individuals of other species, especially the Long-tailed Mufflin, and Blue Tit; and, having in all respects a great similarity in habits and pursuits to the Gold-crest, it very frequently associates with it. In the pine forests on the Dee and the Spey, where very few birds are met with, it is pleasant to follow a troop of these tiny creatures, as they search the tree tops, spreading all round, fluttering and creeping among the branches, ever in motion, now clinging to a twig in an inverted position, now hovering over a tuft of leaves, picking in a crevice of the bark, searching all the branches, sometimes visiting the lowermost, and again winding among those at the very tops of the trees. In wandering among these woods you are attracted by their shrill cheeping notes,

which they continually emit as they flutter among the branches; and few persons thus falling in with a flock, can help standing still to watch their motions for a while. Even the geologist, bent with a heavy load of granite chips, pondering on cataclysms, central fire, convulsions, and revolutions, and dreaming of the overturning of the primeval forests and their conversion into beds of coal, looks up and admires the busy creatures, whose thoughtless glee has disturbed the workings of the mighty genius which had almost completed the creation of a world.

But it is not in fir woods only that it occurs, but also in those of birch, oak, and alder; and to study its habits, or procure specimens, you need not make a journey to the desert, for you will find it in almost every plantation on the skirts of the most cultivated tracts. There is no part of Scotland in which I have not met with it, excepting the treeless tracts and islands, in which birds of sylvan habits cannot find subsistence. In the southern division, in the counties of Dumfries, Selkirk, Peebles, and the Lothians, it is as numerous as in the northern. It feeds entirely on insects, especially small coleoptera, pupæ, and larvæ, in pursuit of which it sometimes descends to the ground, and not unfrequently to a shrub, while both it and its frequent companion the Gold-crest sometimes betake themselves to thickets of broom and whin. I have never found any sand or gravel in its stomach, and it is probable that the elytra of the coleoptera which form the principal part of its food are sufficient for grinding it down.

Its flight is short, even, and produced by a continued flutter. When searching for food it now and then emits a single sharp cheeping note; but on other occasions, especially in spring, it has a loud clear cry, resembling the syllables *che-chee, che-chee*, which may be heard nearly to as great a distance as that of the Great Tit. In winter, most of the individuals that have passed the summer in the higher parts of the country, descend into the valleys and plains, and sometimes approach farm-houses and towns, seeking for food on trees of all kinds. In summer they are dispersed among the woods, where, on account of the dense foliage, it is difficult to trace them, unless they be of fir

or pine, of which the summer dress is not different from that of winter.

"In woodlands," says Mr Hepburn, "it is common to see it hopping on the ground, and uttering its harsh notes, *if-hee, if-hee*. It delights to examine a ditch that has just been cleaned out. I have seen it pull small earth-worms to pieces and devour them. I have heard this bird compound a note, which it repeated for twenty minutes or so, and then seem to forget it. The young are fledged in the beginning of July."

The nest, which is placed in the hole or crevice of a wall or decayed tree, is composed of moss intermixed with the hair of various animals, and with a lining of wool and hair. The eggs are from five to eight, seven-twelfths long, nearly six-twelfths in breadth, white, with light red spots and dots. -

* *

Young.—The young differ from the adult only in having the tints duller.

* A nest sent to me from Dunkeld, by Dr Robertson, may be thus described:- It is rather loosely constructed, and of considerable size, measuring internally two inches and a quarter, externally four inches and a quarter. The outer part is composed of chips of decayed wood, small bark twigs, fibres of various plants, mosses, then a thick layer of fine moss and fibres; the inner layer more compact, and formed of fibres, intermixed internally with downy feathers. The fibres are not slender roots, but the ligneous or pearen fibres of the bark of trees, and of the stem and leaves of herbaceous plants. The eggs are six, eight twelfths long, six twelfths in breadth, white, with numerous light-red dots and small spots at the larger end, and a few scattered over the other parts.

Linn.

4. PARUS PALUSTRIS. THE MARSH TIT.

MARSH TITMOUSE. BLACK-HEADED TOMTIT.

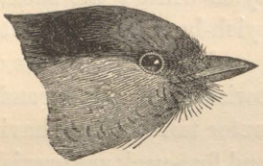


FIG. 184.

Parus palustris. Linn. Syst. Nat. I. 341.
Parus palustris. Lath. Ind. Orn. II. 565.
Marsh Tit. Mont. Orn. Dict.
Mésange nonnette. Parus palustris. Temm. Man. d'Orn. I. 291.
Marsh Tit. Parus palustris. Selb. Illustr. I. 237.
Parus palustris. Marsh Tit. Jen. Brit. Vert. An. 123.

The head and throat brownish-black, a broad patch of greyish-white on the cheek and side of the neck; back greyish-brown, lower parts brownish-yellow (no white on the nape or wing-coverts as in the Coal Tit).

MALE.—The Marsh Tit is considerably larger than the Coal Tit, from which, although very similar in colour, it is readily distinguishable, by the dull or brownish black colour of the head, and the want of the white patch so conspicuous on the nape of that species. The bill is very similar to that of the last species. The tarsi are of moderate length, stout, with eight distinct scutella, the hind claw very strong, and the anterior toes much larger than those of the Coal Tit. The plumage is blended, very soft and tufty, the feathers much elongated on the hind part of the back. The wings are semiovate, convex, rounded, and of

moderate length; the quills nineteen, slender; the first about half the length of the second, which is about the same length as the ninth, the fourth longest, but very little exceeding the fifth. The tail is rather long, slender, a little emarginate as well as rounded, the feathers pointed.

The bill is black, the iris dark brown; the feet and claws livid-blue. The upper part of the head, and the hind part of the neck are black, with a tinge of brown; the cheeks and sides of the neck greyish-white; the back, scapulars, and upper tail-coverts, greyish-brown, with a tinge of green; the quills, their coverts, and the tail-feathers dark brownish-grey, margined with yellowish grey, the secondary quills with yellowish-brown, the outer tail-feathers having their outer webs paler. The throat and fore-neck are greyish-black, the feathers tipped with greyish-white; the rest of the lower parts brownish-white, with a tinge of yellow.

Length to end of tail $4\frac{1}{2}$ inches; bill along the ridge $\frac{4\frac{1}{2}}{12}$; wing from flexure $2\frac{5}{12}$; tail $2\frac{2}{12}$; tarsus $\frac{10}{12}$; hind toe $\frac{5}{12}$; its claw $\frac{4}{12}$; second toe $\frac{5}{12}$, its claw $\frac{2}{12}$; third toe $\frac{4\frac{1}{2}}{12}$, its claw $\frac{3\frac{1}{2}}{12}$; fourth toe $\frac{3\frac{1}{2}}{12}$, its claw $\frac{2}{12}$.

Female.—The female differs from the male only in having the colours somewhat duller, especially the black tints, which are more tinged with brown.

Habits.—This species is not nearly so common in the southern districts of Scotland as the Coal Tit, and I am not aware of its having been met with farther north than Fifeshire, although it may be more generally distributed than is supposed, it being very liable to be confounded with the species just named, although easily distinguishable by a person acquainted with its characters, and somewhat different in its habits. In England it has been traced from the northern counties to those about London, and appears to be in some districts more abundant than the Coal Tit. Although named the Marsh Tit, it does not confine itself to marshy places, but examines the trees and bushes growing in the driest soil as readily as those of swampy ground; and I have seen it alight on herbaceous

plants, especially thistles. Its flight is rapid and undulated, all its motions are quick and abrupt, and it creeps along the twigs, flutters, and throws itself into all sorts of positions, just like the other species. Its food consists chiefly of insects, but in autumn and winter it also eats the seeds of various syngenesian and other plants, and will pick at the flesh of a dead animal. It remains all the year with us, and does not seem to shift its quarters much. Its ordinary cry is a shrill cheep, but it also emits a variety of chattering notes, and in spring has a kind of song which may be expressed by the syllables *chicka*, *chicka*, *chee*. Toward the end of that season, the little flocks disperse, separate from the individuals of the other species with which they have associated in winter, and betake themselves to the dense woods, or the marshy wooded borders of streams and pools, the chief attraction to which seems to be the decayed willows, of which the crevices afford an abundant supply of insect food.

The nest is generally placed in the hole of a decayed tree, which the bird has enlarged for the purpose, and is composed of moss, wool, hair, and vegetable fibres interwoven, and lined with the seed down of willows and syngenesian plants. The eggs, from five to seven or eight in number, are from seven and a quarter to nearly eight twelfths in length, six twelfths in breadth, oval, and of a white colour, marked all over with small spots and dots of light red. The same anxiety about its eggs or young is manifested by this as by the other species of the genus. It is remarkable that the Tits should be so late in breeding, the young of this and the last species not being generally abroad until the end of July, at which time even nests with eggs have been obtained.

Montagu states that he has "seen it excavating the decayed part of the willow, carrying the chips in its bill to some distance, always working downwards, making the bottom for the reception of the nest larger than the entrance. The nest is composed of moss and thistledown, sometimes a little wool, and lined with the down of the thistle." "All the species of Tits," he observes, "whose eggs are known, are similar in colour, and only to be distinguished from each other by size

and weight. Those of the nuthatch, creeper, wren, yellow-wren, wood-wren and chiff-chaff, all agree in their markings, and are so like those of the Titmice that it is scarcely possible to separate them with certainty, if once mixed together. It is somewhat remarkable, all these birds breed in holes, or make a covered nest."

As this bird is not often met with in the neighbourhood of Edinburgh, I desired my friend Mr Weir to make as many observations respecting its habits as he could, and the result has been the following notice, which is not less interesting than the many others with which this volume is enriched.

" In this neighbourhood the Marsh Titmice are seldom seen. During the long period of fourteen years I have known only two of their nests. On the 22d of July 1838, I discovered one of them in which were five young ones. It was built in the hole of the trunk of an old and decayed Scotch fir, which was standing in the middle of a plantation. The ground round it was very swampy. I have sent you the nest and part of the tree, as you will describe its structure better than I can.

" On the morning of the 22d of July I watched the old ones for a considerable time. During the course of an hour, they fed their brood, which were about seven days old, generally eighteen, nineteen, and twenty times. Their food consisted of caterpillars. When I went near their abode, the female came within fifteen or twenty yards of me, but the male was very shy, and remained at a considerable distance.

" In the same plantation, on Saturday the 28th of July, in the hole of the trunk of an old tree excavated by the Titmice nearly in the same way as the former one, I discovered a nest with five eggs, which were white with reddish-brown spots, most numerous towards the larger end. I put her out of it, to examine them; she was however so shy that she did not return, which is not the case with the other members of this family."

The portion of the tree brought to me by Mr Weir has a diameter of seven inches. It is in a state of decay, the wood being of a brownish-yellow colour, soft, and friable, but still enclosed by the equally decayed bark. There are two verticils

of branches, ten inches distant; at the base of the upper of which, between the roots of two of the branches, is a small hole, passing directly downwards into a roundish cavity four inches in depth, and nearly two in breadth. In the bottom of this hole it would appear the birds had at first intended to form their nest, there being in it a quantity of fragments of the decayed wood, and some moss. From this cavity there passes obliquely downwards a passage communicating with another five and a half inches in length, and two and a half in breadth, on the opposite side of the trunk. To the depth of an inch the bottom is filled with dust of the decayed wood, over which is laid a mass, three quarters of an inch thick, of small chips of wood, bits of blades and straws, a vast quantity of brown scales of buds or catkins, intermixed with vegetable fibres of various kinds, hair of various animals, a little wool, and a few particles of moss, forming a very soft elastic bed.

Young.—The young when fledged, differ from the adult only in having the tints duller, the upper parts more tinged with green, and the black of the head approaching to a sooty-brown; the bill is black; the iris dusky brown; the feet light blue; the claws dusky greyish-blue. The upper part of the head and the nape dull brownish-black; throat blackish-brown, the feathers tipped with yellowish-grey. The back is light greyish-brown; the quills and tail dusky, the feathers margined with greyish-brown; the cheeks, sides of the head, and all the lower parts dull pale yellowish-grey.

Remarks.—I have carefully compared specimens shot in France with those in my collection obtained in Scotland, and am persuaded they are identical.

Linn.

5. PARUS CRISTATUS. THE CRESTED TIT.

CRESTED TITMOUSE.

Parus cristatus. Linn. Syst. Nat. I. 340.
Parus cristatus. Lath. Ind. Orn. II. 567.
Crested Titmouse. Mont. Orn. Dict.
Mésange huppée. Parus cristatus. Temm. Man. d'Orn. I. 290. III. 211.
Crested Titmouse. Parus cristatus. Selb. Illustr. I. 243.
Parus cristatus. Crested Titmouse. Jen. Brit. Vert. An. 122.

Occipital feathers elongated, pointed, and slightly recurved, forming a conspicuous crest; feathers of the head black, with white margins; cheeks white; space behind the eyes, a decurved band over the hind-neck, and a large triangular spot on the fore-neck, black; upper parts grey tinged with yellowish-brown; breast greyish-white; sides, abdomen, and lower tail-coverts pale yellowish-brown.

Male.—This very beautiful little bird is apparently confined with us to the extensive woods in the northern part of the middle division of Scotland, and is even there extremely rare. In the course of fifteen years I have only heard of two specimens that were sent to Edinburgh to be prepared. They were shot somewhere on the Spey in November 1836; and from them exclusively I have taken my descriptions, the specimens seen in museums in this country being generally of exotic origin. The general form resembles that of the Blue and Black Tits. The bill is rather short, straight, somewhat slender, compressed, acute; the upper mandible with its dorsal outline slightly arched, the edges straight and a little inflected; the lower mandible with its dorsal line very slightly convex. The feet are short and strong; the tarsus with seven anterior scutella, and small posterior scales; the hind toe strong, with four scales, the second with nine, the third ten, the fourth eight; the

claws much arched, high, extremely compressed, with erect grooved sides, and very acute point.

The plumage is blended. The feathers of the upper part of the head are rounded; those of its hind part elongated, pointed, and slightly recurved, forming a very handsome crest. The wings are rather short, and rounded; the first quill very short, being a third of the length of the fourth, which is longest; the fifth almost as long; the third nearly equal to the fifth; the secondary quills rounded and acuminate. The tail is rather long, emarginate, of twelve rather narrow slightly rounded feathers.

The bill is black. The feet are black tinged with greyish-blue; the claws brownish-black. The feathers of the head are black, margined with white. The loral spaces and cheeks are white; a black semicircular band from behind the eye, and another of the same colour crossing the hind-neck and curving downwards so as to join a large triangular black spot on the fore part of the neck. The general colour of the upper parts is grey tinged with light yellowish-brown; the quills and tail-feathers dusky-brown, margined with pale grey, the tail lighter. The breast is greyish-white; the sides, abdomen, and lower tail-coverts, pale yellowish-brown.

Length to end of tail $4\frac{7}{12}$ inches; extent of wings 8; wing from flexure $2\frac{1}{2}$; tail $1\frac{1}{2}$; bill along the ridge $\frac{5}{12}$, along the edge of lower mandible $\frac{6}{12}$; first toe $\frac{4}{12}$, its claw $\frac{4}{12}$; second toe $\frac{4}{12}$, its claw $\frac{3}{12}$; third toe $\frac{5}{12}$, its claw $\frac{3}{12}$; fourth toe $\frac{4}{12}$, its claw $\frac{3}{12}$.

Female.—The female is similar, but with the crest slightly shorter.

Length to end of tail $4\frac{6}{12}$; extent of wings 8.

Habits.—Of the habits of this species as observed in Britain, I am not aware that any thing of importance is known. Montagu's remarks on this subject, which have supplied a text for all subsequent writers, are as follows. "The Crested Titmouse is a solitary retired species, inhabits only the gloomy forests, particularly those which abound with evergreens. It has not been found in South Britain, but is not uncommon amongst the large

tracts of pines in the north of Scotland, particularly in the forest of Glenmore, the property of the Duke of Gordon, from whence we have seen it. The eggs are said to be white, with small spots of red; the nest we do not find to be described by any one." Thomas Macpherson Grant, Esq., who shot the specimens above described, informs me that he obtained them in one of the native pine forests of the upper part of the Spey, where they were roaming in considerable numbers, and in their habits not distinguishable from the Coal Tit. Mr Weir writes to me that Alexander Campbell, Esq., y^r^. of Barcaldine, informed him that in January 1838, he killed, about two miles from Barcaldine House, Argyllshire, a very beautiful individual of this species. If any of my readers should be curious to know how an author may contrive to talk a great deal about nothing, he may consult the article Crested Tit in an amusing work entitled "The Feathered Tribes of the British Islands."

Remarks.—The Crested Tit is stated by authors to occur in many parts of the continent, especially those abounding in pines and juniper. M. Temminck informs us that it feeds on insects, spiders, small caterpillars, berries, and seeds of evergreen trees; nestles in cavities of trees, holes in walls and buildings, and in the deserted nests of squirrels and magpies, and lays as many as ten eggs, which are white, marked on the large end with blood-red spots. He further states that it is rare in the central, and more so in the southern parts of Europe, is nowhere plentiful, and is only met with, like the Bohemian Chatterer and some other birds, during very severe winters, when it visits the pine woods.

Leach.

Genus II. MECISTURA. MUFFLIN.

The Long-tailed Tit, Parus caudatus, of authors, differs so much from the other species, in the length of the tail, the form of the bill, and other particulars, that it has been, and I think with propriety, referred to a separate genus, of which the following are the principal characters.

Bill very short, rather stout, compressed; upper mandible with its dorsal outline convex from the base, the ridge narrow, the sides convex and deflected, the edges direct and overlapping, the tip acute, considerably decurved and extending beyond that of the lower, without notch or sinus; lower mandible with the angle very short, rather wide, and rounded, the dorsal outline ascending and convex, the sides convex, the edges inflected, the tip acute; the gape-line a little arched.

The mouth is very narrow, its interior as in the Tits, as are the digestive organs. The body short and full; the head very large and broadly ovate. The nostrils small, round, and concealed by the feathers, as is the base of the bill. The eyes are small, the bare margin of the eyelids very broad and crenate. The feet of ordinary length, rather slender; the tarsus compressed, with seven large anterior scutella; the toes rather slender, the first proportionally large and stout, being with its claw as long as the middle toe; the anterior toes united as far as the second joint. The claws are long, moderately arched, extremely compressed, laterally grooved, and very acute.

Plumage exceedingly soft, loose, and elongated. Wings of moderate length, concave, very broad, rounded; the first quill not half the length of the second, the fourth and fifth longest. Tail very long, straight, graduated, of twelve narrow rounded feathers.

There is but one British species of this genus.

MECISTURA ~~LONGI~~CAUDATA. THE LONG-TAILED MUFFLIN.

BOTTLE TOM. BOTTLE TIT. LONG-TAILED MAG. HUCK-MUCK. POKE-PUDDING. MUM-RUFFIN.



Fig. 185.

Parus caudatus. Linn. Syst. Nat. I. 342.
Parus caudatus. Lath. Ind. Orn. II. 569.
Long-tailed Titmouse. Mont. Orn. Dict.
Mésange à longue queue. Parus caudatus. Temm. Man. d'Orn. I. 296.
Long-tailed Titmouse. Parus caudatus. Selb. Illustr. I. 241.
Parus caudatus. Long-tailed Titmouse. Jen. Brit. Vert. An. 124.

Tail very long, graduated; plumage extremely soft; head, throat, and breast white; a broad band over the eye, the nape, and the back black; scapulars reddish; tail black; the three lateral feathers on each side externally white. Young duller, without red on the scapulars.

Male.—This singular-looking bird, the most diminutive of our British species, except the Kinglets, differs from the Tits chiefly in having the plumage softer and more bulky, and the tail much more elongated. The bill is very similar to that of the Blue Tit, but shorter, or more concealed at the base by the feathers, and with the upper mandible longer and more decurved. Both mandibles are internally concave, with a median

prominent line. The tongue is linear, subsagittate at the base, abruptly terminated, with four bristles. The œsophagus is an inch and a twelfth long; the stomach roundish, compressed, five twelfths in length, moderately muscular, with a longitudinally rugous epithelium; the intestine four inches long, averaging one twelfth in width; the cœca very small, and the cloaca globular.

The tarsi are rather slender, much compressed; the hind toe with its claw longer than the third with its claw; the first with eight, the second with eight, the third with ten, the fourth with nine scutella. The nostrils are round, a quarter of a twelfth in diameter. The eyelids are broadly margined with a bare crenate skin. The plumage is extremely soft and tufty; and the bristle-pointed feathers at the base of the bill lie over so as to conceal the nostrils. The wings are rather long, concave, rounded, of eighteen quills; the first half an inch long, the second four and a half twelfths shorter than the third, which is a twelfth and a half shorter than the fourth, the latter being a third of a twelfth shorter than the fifth, which is the longest, the second and ninth about equal. The tail is very long, straight, graduated; the lateral feathers an inch and nine twelfths long, eight twelfths shorter than the next, and an inch and nine twelfths shorter than the middle feathers, which, when complete, are longest.

The bill is black; the iris brown, the bare margins of the eyelids broad and of a reddish colour; the feet and claws dusky. The lower parts are white, the sides and abdomen tinged with rose-colour. The fore part and crown of the head are white; a broad band of black extends from over the eye down the neck; the back is black, the feathers along its sides and on the rump tipped with light red. The quills are brownish-black, the secondaries broadly edged with white. The tail is black, but the three lateral feathers are white on the outer web and part of the inner at the end, the white of the third feather extending only halfway down.

Length to end of tail $5\frac{10}{12}$ inches; extent of wings $6\frac{9}{12}$; bill along the ridge $\frac{5}{12}$, along the edge of lower mandible $\frac{4}{12}$; wing from flexure $2\frac{5}{12}$; tail $3\frac{7}{12}$; tarsus $\frac{7\frac{1}{2}}{12}$; first toe $\frac{5}{12}$,

its claw $\frac{5}{12}$; second toe $\frac{5}{12}$, its claw $\frac{11}{12}$; third toe $\frac{4}{12}$, its claw $\frac{9}{12}$; fourth toe $\frac{3\frac{1}{2}}{12}$, its claw $\frac{11}{12}$.

Female.—The female is similar to the male, but has the secondaries greyish-brown, the black band on the side of the neck broader, and the feathers on the fore-neck with light brown streaks.

Changes.—The plumage being complete in November is as described above. In summer the white is purer, and the wings more brown. In the end of spring the fleshy margins of the eyelids are bright red.

Habits.—How pleasant it is to gaze upon these little creatures streaming along the tops of the tall trees by the margin of the brook, ever in motion, searching the twigs with care, and cheeping their shrill notes as they scamper away, one after another! The flight of the Mufflin, not inaptly named, as its tufty plumage makes it look as if muffled to the chin, is undulated and rather rapid, when extended to a distance, but is not executed with such speed as to justify, on that account alone, the comparison which has been made of this bird when flying, to an arrow or a dart. It is the long tail that suggests the idea of a shaft, while the body and wings resemble the barbed head of the arrow. The Wagtails, whose flight is more elegant and rapid, present a similar appearance. Its shorter flights from tree to tree are hurried and fluttering, like those of the Tits; and its notes bear some resemblance to those of the Blue Tit, but are shriller and louder. Frequently it is found associating with the Coal Tit and the Kinglet, and occasionally with the Blue and Greater Tits; but I have fully as often met with it in flocks of about a dozen, searching the twigs, without companions. It is easily shot, although somewhat more observant than the Tits, or perhaps more capricious, as it flits about with great celerity, and clings to the branches in every kind of posture. Its food consists of small insects, pupæ, and larvæ, for which it searches trees of all kinds, apparently without preference, it not being so partial to the Coniferæ as the

Coal Tit. In winter, and the early part of spring, it is chiefly on tall trees that it is met with; but at other seasons it frequents thickets of low bushes, as well as woods, and now and then travels over the fields, settling here and there on the grasses and other herbaceous plants.

My friend Mr Hepburn thus describes its habits:—"The Long-tailed Tit, which is common in our plantations and tall hedge-rows, is even more restless than the Blue Tit. From the first streak of day until sunset you may see them in troops searching the branches of the tall hedge, or following each other in a stream through the woods, uttering a harsh note resembling *chur-chur*, and a shrill one very like *twit-twit*. In the end of February (1839), one morning before the sun was risen, I reached their haunts. They were sporting in a hedge which bounds a plantation, and, although the cold was intense, exhibited their usual alacrity and animation. Just as the sun rose above the snow-clad Lammermoors, four or five of them left the hedge, and perched on some stems of hemlock, which had been cut down last autumn, within three inches of the ground. They even spread over the barley stubble, and settling on it diligently examined it till they were left behind by their companions, when away they jerked to join them, but still alighted every now and then on the stubble and hemlocks. The young birds, which are fledged about the end of June, follow their parents till the end of spring; but they are such social birds that I have seen the males feeding in company, when the females were sitting."

About the beginning of April, the flocks break up, and towards the end of that month the important business of the season commences. The nest is not placed in a hole, like that of many of the Tits, American as well as European, but is supported by the twigs or branches of a tree or bush, sometimes at the height of many yards, but not unfrequently very near the ground. Being of singular beauty, it has often been well described; but various writers, apparently not knowing how to dispose of the long tail of the bird, have imagined it to have two holes, one for the protrusion of that appendage. This account, which I am authorized by observation to say is incorrect, may

have perhaps been taken from a nest purposely or accidentally mutilated. ~~A short digression will illustrate this~~.

The season of deer-shooting was at hand, when a friend and I went to try our guns with ball. One of the servants took a barley cake from the kitchen-fire, and put it up as a mark. Several shots were fired, but the balls merely tore up the turf. At length, taking a very steady aim from the corner of the sheep-fold, I pulled the trigger once more, whereupon the lad running to the cake declared that I had shot right through its centre, and bringing it to us exhibited the proof of my dexterity, but in a little while put an end to my vapouring and loosened the mirth of my rival, by shewing how he had made the hole with his thumb. So, I suppose, the nest in question may have been thumbed before it was given to the ornithologist who first described it. However this may be, here is a true and faithful account of a genuine nest taken from a fir-tree near Lasswade, in the autumn of 1838. It contained sixteen young birds nearly fledged, which have been stuffed, and the two old ones, which were caught in it at night.

This nest is extremely beautiful, being of a very regular oval form, seven inches in length, and four inches and a quarter in breadth at the middle. It is composed of hypna, kept together by means of the flaxen fibres of plants, some wool, and delicate filmy shreds, interwoven chiefly in a transverse direction, and has nearly the whole of its outer surface stuck over with small grey lichens, which are not agglutinated, but kept attached by filaments. The aperture, which is round, is an inch and a quarter in diameter, and an inch and a half from the summit or dome. The outer shell thus formed, although well felted and interwoven, is only a quarter of an inch thick. Its inner surface is stuck over with large feathers, and the whole internal cavity is not merely lined but filled with the same materials. They are pretty closely compacted at the bottom and along the sides, and when shaken suffice to fill a hat of moderate phrenological pretensions, although not exactly mine, which belongs to what may be called a dunderhead. On being counted by a young man, the number is found to be 2379. They belong chiefly to the Pheasant,

Wood-Pigeon, Rook, and Partridge; but there are also feathers of the breast of the Missel Thrush, of the Yellow Bunting, and of several other birds. For this nest I am indebted to Mr Carfrae.

Another now before me is much smaller, being five inches and a half in length, and three and a quarter in its transverse diameter. The aperture, which is near the top, is elliptical, an inch and ten twelfths across, and an inch in height. The walls are formed of moss felted with wool, covered externally with grey lichens held down by hairs and delicate filaments, and profusely lined with feathers. Another, from Dunkeld, six inches long, three and a half in breadth, is composed of moss and wool, crusted externally with grey lichens. The number of feathers is six hundred and eighty nine. Three fourths of them from Edge, being of the domestic fowl, pheasant, turkey, and rook. When shaken, they occupy a spheroidal space four inches in dia. meter. One from Oxford. This, placed in the form of a long, pyriform, and six inches in length, has scarcely any moss in its composition, being formed of bits of gray and brown lichens, kept together with blades of grass, downy filaments, and some cotton threads, with a lining of feathers.

The following interesting account of the construction of a nest of this bird I have just received from Mr Weir.

"Boghead, 11th May 1839.—About seven o'clock, on Saturday morning, the 20th of April, I had the pleasure of observing a pair of these active and interesting little birds, the Long-tailed Titmice, lay the foundation of their nest, in the cleft of an old ash-tree, at the distance of about fifty yards from my garden. Before they commenced their operations they flew in and out again and again, and examined the situation with the greatest attention. The under part of their abode was constructed with mosses, and the sides with small portions of the white and grey tree lichens, fine green mosses, some feathers, and a few leaves of the beech tree, beautifully intermixed and firmly interwoven with wool and the webs of spiders' eggs. To give these materials the requisite solidity, they pressed them down with their breasts and the shoulders of their wings, and turned their bodies round upon them in all directions. When I first began to observe their motions, they seemed to be much displeased, and set up a strong clicking noise not unlike that of the Stonechat; but they soon became so tame that, although I placed myself at no great distance from them, my presence gave them but little annoyance. When the male was at work, the female usually remained upon a branch of the tree, about a foot from the nest, until he was done; she then went in, her partner remaining at the outside until she had completed her task. They then flew off together in search of materials, sometimes to a considerable distance, flitting through the air with the rapidity of an arrow.

"On Thursday forenoon, between ten and eleven o'clock, the outside of the nest having been, after much labour, completed, they commenced lining it with a great variety of feathers, some of which were of considerable size. With almost every kind of bird that came near their residence, even although some were three or four times larger than themselves, they fought most courageously, and did not desist from tormenting them until they drove them away. When engaged in contest, they uttered a harsh kind of chirp. It is asserted by Mr Selby 'that a small hole is left on two opposite sides of the nest, not only for ingress and egress, but also to prevent the bird, during incubation, from being incommoded by its long tail, which then projects through one of the orifices.' If this be the form in which it is built in England, it is not so in this neighbourhood, for in all the nests which I have discovered, there was only one very small hole. When the female is sitting upon eggs, the male usually resides with her during the night. In this situation I have caught them after sunset, about the beginning of May. How they keep their tails from being injured is truly astonishing.

"On Wednesday afternoon the 1st of May, they finished their snug and comfortable dwelling, after having been for twelve days constantly and arduously engaged in its construction. All the sides and bottom of the interior were thickly lined with a great variety of feathers. Of all our British nests this is the most elegantly and artfully constructed. On Thursday morning, the 2d, the female laid her first egg. There are ten eggs in it to-day."

The eggs, usually about twelve, are smaller than those of any other British bird except the Kinglet, of a regular oval form, blunt at the smaller end, from six to seven twelfths long, and about five twelfths broad, white, generally marked with numerous faint red dots at the larger end.

This species is generally distributed in England, and is very abundant in many parts of the south of Scotland, but also occurs as far north as the county of Ross. In all parts it is a permanent resident.

Young.—The young when fledged have all the lower parts,

a longitudinal patch on the head, the outer edges of the secondary quills, the outer webs of the three lateral tail-feathers and a portion of the inner webs of the two outer, white; the other parts brownish-black, excepting the abdomen and lower tail-coverts which are brownish-red. The bill and feet are at first flesh-coloured, and gradually darken.

Progress toward Maturity.—In their second plumage the young differ little from the old birds. The head and neck however have the white obscured by dusky streaks, of which there is one on each feather; the fore part of the neck is greyish-white, with small faint brown spots; the rest of the lower parts reddish-white, the lower tail-coverts brownish-red; the hind-neck and back as in the adult, as are the wings and tail. The members of the family generally keep together during winter and spring.

Remarks.—In revising the above, I find, on referring to M. Valmont-Bomare's Dictionnaire d'Histoire Naturelle, the following illustration of the fable of the nest with two holes:—"Elle fait son nid à trois ou quatre pieds de terre, l'attache aux branches dans leur enfourchement, et le construit de telle maniere que l'ouvrage en entier ressemble à un œuf placé sur une de ses pointes; il y a une et quelquefois deux ouvertures laterales, opposées l'une à l'autre, pour sortir et rentrer."

Parus minimus of Townsend, the "Chestnut-crowned Titmouse," found in the Columbia River district, belongs to this genus, and may be named *Mecistura minima*. Parus rufescens of the same naturalist approaches nearly to it, as does Parus hudsonicus.

PRACTICAL ORNITHOLOGY.

SIXTH LESSON.

AUDUBON, ORNITHOLOGUS, AND PHYSIOPHILUS MAKE A DIGRESSION TO THE PENTLAND HILLS, HALT AT CURRIE, AND RETURN TO EDINBURGH, DISCOURSING ON BIRDS AND OTHER MATTERS. THEREAFTER MR WEIR GIVES AN ACCOUNT OF THE MIGRATORY BIRDS OF WEST-LOTHIAN, ORNITHOLOGUS OF THOSE OF MID-LOTHIAN, AND MR HEPBURN OF THOSE OF EAST-LOTHIAN. SOME OMISSIONS ARE JUDICIOUSLY DEALT WITH, AND PROMISES MADE, WHICH THE AUTHOR INTENDS TO FULFIL TO THE LETTER.

Ornithologus. A more beautiful morning, or one giving promise of a brighter day, we could not have desired. I am glad that it is so, for this may be our last excursion, and I am anxious that the favourable impression made upon you by our Highland mountains and lakes, which we visited together last September, may not be diminished by the sight of our Lowland hills, of which the Pentlands on our right hand are not the least celebrated.

Audubon. What you say as to the weather is true indeed, for a finer May-day I have never seen in any country. The thermometer was at 54° when we left Edinburgh, but the unusual heat is tempered by this gentle breeze from the west. As to your Highland scenery, I freely confess that it is in some respects unrivalled, and your Lowlands are generally very beautiful, while your capital is certainly not equalled by any city that I have seen in Europe or America.

Physiophilus. There is Woodhouselee, the residence of a celebrated historian. There are some Titmice in the trees, Golden-crested Wrens, and——List! did you not hear the Willow Wren?

Aud. I see it, on the top twig of that ash-tree. Do you wish to have it?

Orn. I do, but it is off; so, let us proceed. Although the first of May is considered as the commencement of our summer, yet vegetation, as you perceive, has made little progress. The larch, a native of the Tyrol, I believe, has its leaves, of the most lively green, more advanced than those of any other tree, excepting these poplars, equally exotic; the beautiful large purple buds of the plane-tree are ready to burst; from some of them leaves have already protruded; the beech is almost as bare as in winter, and the ash shews nothing as yet but its singular black buds.

Aud. It is wonderful to see how far behind the hawthorn hedges are compared with those about Edinburgh, although these have the advantage of a southern exposure. There are several Willow Wrens, and a single Swallow. What summer birds have arrived?

Phys. On the 25th I shot two Wheatears in the King's Park, and on the 29th two Yellow Wagtails, five Chimney Swallows, a Window Martin, and a Bank Swallow, at Colt Bridge.

Orn. The hollow there is a favourite place with Swallows at their first arrival, especially when the wind is easterly, and I have seen them there a fortnight before they were to be observed in the town. They were seen at Airthrie, near Stirling, on the 14th of April, and at Lasswade on the 20th. The Willow Wren is the only other species that I have yet met with.

Aud. These green hills are very pretty. I suppose this narrow pass leads to the glen of which you have spoken.

Orn. It is Glencorse. How few larks we hear to-day! I suppose they are busily occupied in forming their nests. See! there are two Whinchats on the bushes by the brook. Let me try one of them. Not killed. I suppose the gun is in bad trim, or the shot too large, or the powder bad, or, what is more likely, my aim has been ill-directed.

Aud. Let Physiophilus take the gun, while you and I clear our eyes with a pinch. There must be some birds among these thickets.

Orn. The lambkins are basking in the sun, and there stands a most lovely Pied Wagtail with a tuft of wool in its mouth. It must have its nest in that quarry. Here are two fishers. They must have poor sport, the water being so very low and clear, and the sky so bright. Go to them, Physiophilus, and say, Gentlemen, Piscatores, how fares it with you this fine May morning? I hope you have had several glorious nibbles. It gives me pleasure to see two fools, each at one end of a rod, and a sham fly at the other.

Phys. Nay, go thyself. *I* am no admirer of "quaint old Izaac." A Wheatear! two of them on the top of the wall. They have alighted by the edge of the pond.

Orn. We cannot shoot them, as the Water Company threatens all intruders. This is the reservoir that supplies Edinburgh.

Aud. It is a fine sheet of water, considered as such, but as a lake it is more remarkable for the bareness of its banks than for any other quality; and there seem to be no birds upon it, not even a Heron. In such a place in America there would be Ducks or Coots, or Water Hens. How amazingly like our Red Lark are these Pipits. If I had met with them in a prairie I should certainly have taken them to be the same as ours. Are there no Dippers here?

Orn. The only bird to be met with on the margins of the lake is the Sandpiper, but the Dipper I have often seen on the brook below, as well as in the glen before us, although we have not met with it to-day. Here, however, is a pair of Ring Ouzels, which are migratory birds, arriving in the end of April, and dispersing themselves over the hilly and mountainous tracts, as far as the northern coasts.

Aud. Beautiful birds! their cry is very like that of our Robin, the Turdus migratorius, and so is their flight.

Phys. Another pair. Hear the Red Grouse! "*Cok, cok, cok, go-back, go-back.*" There he bounces away; down he comes on the side of the hill, where he runs and struts with his tail raised and his wings drooping. Whirr! off goes the hen. How easily I might shoot her!

Orn. Down with that gun of thine! Thou mightst be

tempted to fire, and then we should be breakers of the game-laws, and disturbers of the peace of this sequestered valley. These birds are Mr Robertson's, not ours. Here is a shepherd. How far is it to Currie?

Shepherd. Six miles. Did the game-keeper not see you?

Orn. I suppose not, at least we did not see him. We shoot no game.

Shep. They dinna alloo folk wi' guns here. I dinna misdoubt ye, but I wad advise ye no to shoot ava, but pass on quietly.

Orn. Well, we promise. Now, Mr Audubon, here is a pretty valley, with heathery hills on both sides, grass in the bottom, and a clear brook, tempting to the mouth in this hot weather. More grouse, one, two, three.

Aud. I did not think there had been any so near town. There must be good shooting on these hills. Your Grouse never alights on trees, does it? all ours do, even the Willow Grouse in winter, when it comes southward, as well as our Partridge.

Orn. Neither of our Ptarmigans perches on trees, but the Black Grouse does. Here are three more Ring Ouzels, and Pipits in abundance. This is a famous place of resort for the Cuckoos, but it does not seem that they have arrived yet.

Phys. A hare on the hill, scudding along! I see a Sandpiper by the brook in that hollow.

Aud. Let us sit down a few minutes, then. There is a small stripe of water coming down the rock.

Orn. Yes, that is the celebrated waterfall, Niagara in miniature, and this Habbie's How, for the history of which, and its connection with Allan Ramsay, I refer you to the Society of Scottish Antiquaries, or your friend Mr Maclaren. Here comes a shepherd. A fine day, friend! Is the lamb dead?

Pastor. No, but its no like to live; the drouth's o'er sair, an' the sheep can get little to eat.

Aud. Physiophilus comes with the Sandpiper. It is amazingly like our Totanus chloropygius. Five miles to Currie, and nothing till then but water. Let us be off. Ah!—a rattle-snake!

Orn. Lacerta agilis—Who would have thought to find it here? I have it, and will keep it as a memorial.

Phys. A dead crow. Is it not Corvus Corone? It will make a good skull.

Aud. See that little Hawk, how beautifully it glides along in its rapid slanting descent. What a splendid figure the small thing cuts! It very much resembles our Pigeon Hawk. What is it?

Orn. The Merlin, so like your Pigeon Hawk, as you say, that some individuals of both species can hardly be distinguished. Indeed I think the authors of the Fauna Boreali-Americana have mistaken the one for the other. There goes its mate. Their cries very much resemble those of the Kestrel. Hear the Curlews respond to them. These birds are very numerous on the hills and moors of this part of the country, as you may have observed.

Aud. Their cry is not at all like that of our Long-billed Curlew—Ah—there now, that undulating whistle is just such as that of our bird. Where does it breed?

Orn. On the moors. I once came upon a nest over the way there. It was in the midst of a tuft of heath and sweet gale, in a wet, or rather spongy place, and we came so close to it that one of us had almost stepped upon the bird, which, on its escaping, we imagined at first to be a hare. The Curlew lays four remarkably large olive-coloured eggs, spotted with dusky, in a shallow nest, formed of some straws and twigs, laid in a superficial cavity. But now we have gained the ridge of the hills, and there before us is a long moor covered with carices, rushes, and heath. How beautifully the Lapwings fly! It is strange that a bird so nearly allied to the Plovers and Tringas should have the wings so broad and rounded, while theirs are so pointed. Have you no birds in America analogous to this?

Aud. Not one. It is a beautiful and gentle creature, notwithstanding its peevish wail. Don't shoot it Physiophilus; it has a nest, and if you kill it you probably destroy five birds, or prevent four from being hatched. I hate to see birds shot when breeding.

Phys. By any person but yourself. Well, I desist, although I am anxious to have the skull of one, being, as you know, forming a series for the purpose of comparing the alleged phrenological indications with the known habits of the birds. The many American skulls with which you have presented me will prove of great interest in this respect.

Orn. There is a Sandpiper: it has flown down the brook close upon the water.

Phys. The fields are covered with Lapwings, picking up their food here and there; but they are too shy, and none near the fences. A hare scuds across, and another is retreating to the plantation. Great numbers of Rooks are scattered about, gleaning for their young. How beautifully that grass field is enamelled with daisies; yet, I daresay, the farmer finds them more ornamental than useful, and would gladly dispense with them. Come now, a smart walk of half an hour on this road, and we shall be at Currie.

Orn. Hot weather, gentlemen! Get up this back stair if you can; and now, here is the house, "at whose friendly door the weary traveller loves to call." Walk in. Which way? Rest is pleasant to the weary, drink to the thirsty, food to the hungry; and we three are all these.

Aud. What shall we have? Whisky and water, porter, bread and cheese, cold meat, and something besides.

Phys. Gentlemen, with your permission, I take the porter.

Aud. Do. Dull drink! Hand me the noggin. Come, here's to our better acquaintance. We have had a very pleasant day. I have not seen so much game in Scotland before.

Orn. Here's to all lovers of nature, and especially to all true ornithologists. May the quinarians reform, and study birds as well as their skins. May Scotland flourish, and England and America prosper. "Land of brown heath"! thou art dear to me; for as yet all thy moors are not fenced and hedged and hemmed in; thy sons, thy physicians, philosophers, historians, and poets,—have not their names been heard in distant lands? —and our ornithologists,—Gentlemen, excuse me, I hope they will yet equal those of England, and trust me, I have seen no history of the birds of that country, nor any representations of

them, that I think may not, under favourable circumstances, be surpassed by your humble servant.

Phys. Bravo! To excel, a man must not undervalue himself. But I must qualify this drowsy stuff with a little of your pure aqua. Now for the soup and oat bread. The expenditure of so much fluid by cutaneous transpiration must be counterbalanced by absorption.

Aud. Well now, having refreshed ourselves, let us march.

Orn. It is a sweet spot, and must be very beautiful in summer, when all those trees and bushes are clothed with foliage. The golden catkins of the willow margin the clear brook, the pure light green of the larches enlivens that steep slope, and here, amidst the grass of this bank, peep forth the Dog Violet, the Pilewort, and the Barren Strawberry, while the Butterburs stand sturdily forth, their clusters of pink florets attractive of the black-and-yellow bees, which eagerly pump out their sweet juices. Many Willow Wrens warble at intervals on the trees; but I hear no other summer bird. The gentle Mavis mingles its sweet notes with the louder and more lively song of the Blackbird. There, Physiophilus, get us a pair of Willow Wrens.

Aud. Were my friend Nuttall here, he might syllable the song of these pretty little things into "*twee, twee, tweee, tweee, twee, twai, twai, twiu, twiu, twiu, twi, twi, twi, twi.*" It is strange that some European ornithologists have stated that the Willow Wren occurs in America. No such thing, I assure you. They must have mistaken the young of some of our Sylvicolæ for it. Physiophilus has shot one.

Orn. You must have many fine songsters in America.

Aud. That we have indeed. The Mocking Bird, of course, stands first in my opinion, and is unrivalled. Then, perhaps on account of my own sensitive nature, I would place next the Wood Thrush, although the Cat Bird is far its superior in many points, as is also the Turdus rufus. Think of our Rose-breasted, Pine, and Blue Grosbeaks, how mellow and sweet their continuous songs are, whether by day, or during calm nights. Watch the varied ditties of the Orchard Oriole, and the loud and more musical notes of its brother the Golden

Hangnest. You have never heard the Tawny Thrush or the Hermit Thrush, otherwise, believe me, you would have enjoyed much delicious pleasure. Bachman's Finch sings well too, and copiously. So does its relative the White-crowned Finch; and were you with me over the waters, you would hear the carols, all most interesting, of the Indigo and Nonpareil Finches, and those more wild, though less varied, of our curiously apparelled Bob-o-link or Rice-bird. I could mention fully a couple of scores, but I will stop short, and simply assure you that America possesses many fine songsters, as does every other portion of the known world.

Miller. A fine day, gentlemen; you are looking for birds, I suppose, for stuffing.

Orn. Not exactly for that purpose. What birds do you commonly see here, any Kingsfishers?

Miller. Yes, very often just here, below the bridge, and in autumn and winter Water Crows. It's a fine place for birds; the water-side's just full o' them in summer.

Aud. Two splendid short-horned oxen fattening in the yard, two Orkney queys, and a fine Newfoundland dog. Is it a flour mill you have? I daresay you are very comfortable here.

Miller. Well enough. We grind oats and barley, have plenty to eat, something to drink, good air, and room enough to breathe.

Orn. How clean and happy-looking the ducks and drakes, and cocks and hens, and turkeys are, compared with the starved and draggled creatures about the towns; the very sparrows are fatter and more ruddy; the rustics plump and rosy and cleanly, compared with the poor mechanics of the city, sallow and dirty by necessity, and I must say often rude. For my part, let them talk of their scientific associations, reading-rooms, and superior knowledge and civilization, I think the parish church the best lecture-room, and the fields the best reading-room. I maintain that no mechanic in Edinburgh will match in real knowledge of nature a shepherd from Yarrow Braes or Tweedsmuir.

Aud. I agree perfectly with you; but let us be off. Good evening!

Phys. Here are two Willow Wrens. I shot what I thought a Blackcap, but it fell into a thicket of sloes and brambles, and I could not find it.

Orn. Now, take the gun, Mr Audubon, and shoot me a bird or two to be kept as memorials of this day's excursion, that, when you are basking in the warmth of your American sunshine, under some flower-clad Magnolia, listening to the notes of the Mocking Bird, and enjoying the repose so sweet after protracted labours like yours, I may call to mind the many happy days we have spent together in cold Scotland.

Aud. With good will. There is a lovely male Yellow Bunting on the very tip of that fir-tree. Now for it. Come, not amiss yet! The first shot I have fired since I came to England last.

Phys. Here is Colinton. Shall we go by the road, or through the woods?

Orn. Take the woods by all means. But let us first quench our thirst. Here is the public house.

Aud. With all my heart. Your Scotch whisky is excellent. I wish we had as good in America. My service to you. May you prosper, and may I live to see engraved your drawings of the Birds of Britain, which I sincerely declare to be the best representations I have yet seen.

Orn. You have so often said so, that I must believe your partiality to the man has not deceived you into a belief that his productions are better than they really are. I wish all the world, excepting of course the authors of similar works, may agree with you. Who knows but the day may come?

Aud. Be assured more strange things have happened. How little did I think when I commenced my drawings, that they should ever form a series of engravings occupying more than four hundred sheets of double elephant folio. Hope for the best, and put me down as your first subscriber.

Orn. It is done. Now, Physiophilus, move a-head, and give room for tacking. There are Dr Walker's cedars of Lebanon on the bank opposite, and here a most beautiful male Chaffinch, worthy of being shot by the American Ornithologist.

Aud. Down it comes. A lovely creature it is indeed. Stop

here now, and let us gather a hatful of these wild flowers, for my daughter, that she may dry them, to keep in remembrance of Scotland.

Orn. It will give me pleasure to assist. Here are some anemones, a tuft of wood-sorrel, a blade of some grass or other, a violet, a primrose, a chrysosplenium, and—

Phys. A bunch of Ranunculus auricomus, not quite in flower. Now for the steep ascent that leads to Fame's proud temple!

Orn. Well, gentlemen, this is the village of Slateford, as full of children as Currie was; and now we have nothing for it but a hard bare road. How the corn of my sixth toe aches!

Phys. Farewell, I must leave you here, and hasten home to finish an essay on the organs of destructiveness in ornithologists, and on the impossibility of determining the analogous parts in the brains of birds.

Ornithologus—(solus in the street, at nine o'clock). A very pleasant day we have had, and now having rested two hours with Americanus Ornitherinus, and enjoyed his hopitality, I go home to prepare for repose by writing half a dozen pages or so. Who can this be? Ah, Mr Weir, how are you to-night? I have just been, with our friend Mr Audubon, over the Pentland hills.

Mr Weir. Man, I wish I had been with you. If you had sent me word I should have come to town for the purpose. I have been at your house.

Orn. Perhaps you will return, for I want some information about birds from you.

Mr Weir. With all my heart.

Orn. Well now, in the first place, did you ever meet with the Garden Warbler, the lesser White-throat, or the Reed Wren?

Mr Weir. The Garden Warbler I have seen several times. I have a very fine specimen, stuffed by Mr Carfrae, which I shot while in the act of singing upon the top of a tall ash-tree about three hundred yards from my house. The Lesser White-throat I saw once, and I had a nest of the Reed Wren; but I will send you a list of the summer birds that appear in West Lothian.

Orn. Did you ever attend to the song of the Sky-Lark? I wish to ascertain its duration by actual observation, for you know how many errors are committed by drawing on the imagination. Hearing the larks on a fine day, one supposes them to sing for hours together, and yet I have never found that their strain continues more than fifteen minutes without intermission. Thus, as I have here recorded, I watched three larks that rose in succession from a grass-field, on a very beautiful day, in the end of February, with a gentle breeze from the east. The first ascended almost perpendicularly, facing the wind, and singing without intermission. When at its greatest height it shot away to the left, in a wide curve, then wheeled to the right, regained its station, began to descend, floating as it were with expanded wings, which, on coming to about two hundred yards from the ground, it closed, and came down with great rapidity, not headlong, but with its body inclined. This excursion lasted seven minutes, and the song continued the whole of that time, excepting the last eight or ten seconds of rapid descent. The second lark proceeded in the same manner, and sung about five minutes, the third only four.

My young friend, Mr Archibald Hepburn, whom I desired to make observations on the subject, has sent me the following: "On receiving your letter I began a series of observations on the Lark. Friday 22d March. Larks sing from 30 seconds to 1 minute 20 seconds. They generally hung in the wind for some time, then drifted down it, till they descended, singing all the while. Sunny. Wind high, cold, W. and S. Therm. 40°. Very few singing.—Saturday 23d. Larks sing for about 2 minutes at most, then drop from a great elevation to the ground, without uttering a note. Sunny. Wind W. and S. Therm. 41°.—Sunday 24th. Larks sing for 2 minutes at most, drop like a stone. Very few singing. Wind W.; very cloudy and cold. Therm. 41°.—Monday 25th. At 6 A. M. Larks sing for 1 minute at most. So far as my observation for one week extends, they seldom sing longer till the sun has risen. Larks sing for 4 minutes at most. They sung in their descent till they reached the ground. Wind W., very gentle. Bright sunshine. Therm. 41°.—Tuesday 26th. Larks sing

for 4½ minutes at most. Wind W., colder than yesterday, and fewer Larks singing. Cloudy. Therm. 44½°.--Wednesday 27th. Larks sing for 4½ minutes at most. I observed one sing for about half a minute on the ground, after his descent. Very warm and cloudy. Wind W. Therm. 47°.—Thursday 28th. The Lark's song lasted nearly 4 minutes at most. They sung during their descent. Wind N. and E. A thick mist all day. Therm. 38°.—Friday 29th. The Lark's song lasted nearly 4 minutes at most. Wind S.E.; cloudy. Therm. 39°. —Saturday 30th. I observed one Lark sing for 6 minutes, but generally their song did not last above 2 or 3 minutes at most. The day very cold and cloudy. Very few birds were singing. Wind S.W. Therm. 38°.—Sunday 31st. Very high winds from S.W. Therm. 38°. No larks singing to-day. So far as my little experience goes, I would say that a high wind has more influence on the duration of the Lark's song than a low temperature has. On the morning of the 15th February last, the ground was covered with snow to the depth of one inch. Just as the sun lifted his head above the snow-clad Lammermoors, a Sky-Lark uprose to meet his gladdening rays. His song was very distinct. After singing for 2 minutes he again descended. It was intensely cold at the time, but there was no wind. On the 26th February, I observed one alight on a well-trimmed hedge, and remain there for about one minute, singing all the while. I am inclined to think, from observation, that they sing more on the ground when the wind is high than when it is calm. In a fine night in June, their song may be heard till about 10 o'clock, and as early as 2 in the morning. I never observed this bird sing longer than 15 minutes. On the 29th September last, I observed several Sky-Larks sing after a silence of nearly six weeks. At this season, it was first heard at 8 A.M., and never after 3 P.M. The song seldom lasted above 6 minutes at a time. Its average duration might be about 3 minutes. On the 12th October, I observed several singing very briskly at 8 P.M., notwithstanding the high winds, and it was so cold that there was ice on all the pools till noon, and several showers of hail fell during the day. A few days before and after the 19th October, their

song was reduced to a very few notes, uttered as they flew from one place to another. On the 15th December, I observed a flock of Larks in a stubble field. Two days after this I had occasion to traverse the whole farm, but not a Lark was again seen in this neighbourhood till the 7th February, when I saw a solitary individual flying over a field. On the 12th February they were singing in great numbers all over the farm. On the following day the wind was high, and very few were heard. Therm. 45°. I have shot several of them when singing, but they all proved to be males. I shall endeavour to shoot one dozen before I write you again."

Mr Weir. A very correct and keen observer, and one who I am persuaded will add much to our knowledge of the birds of our own country, respecting which I believe very little is yet known. Such observations as I have opportunities of making are at your service; but in the meantime, it being rather late, I must bid you good-night.

Some days after I received from Mr Weir a List of the Summer Birds observed in the neighbourhood of Bathgate, in the county of Linlithgow, situated inland; and from Mr Hepburn a similar List of those seen in the parishes of Whittingham and Whitekirk, in the county of Haddington, also situated inland, and including part of the Lammermoor Hills. To these I add a list of the species observed by me in the county of Edinburgh. The three different districts are marked, *M.* Mid-Lothian; *W.* West-Lothian; *E.* East-Lothian.

Summer Birds of the Lothians.

1. *Ringed Thrush, or Ring Ouzel. Turdus torquatus.*

M. Arrives about the middle of April, and departs in the beginning of October. Not uncommon on the Pentland Hills, especially in Glencorse.

W. A pair or two have for a number of years past appeared

at the same place on the top of Bathgate Hills, generally during the second week of April. In 1839, they were first observed on the 8th.

E. Arrived on 19th April 1839. Departed on 20th October 1838. Lammermoor Hills. Rather rare.

2. *Tree Pipit. Anthus arboreus.*

M. Arrives in the beginning of May. Not extremely rare. I have examined several specimens shot in the district; among them one by my son on the 4th of May 1839.

W. Generally arrives in the first week of May.

E. On 11th May 1839 I observed one rise from the top of a tall tree at the east side of Pressman Copse. Like the Titling, it sung in its descent, returning to the tree with expanded wings and tail.

3. *Green-headed Quaketail. Budytes Rayi.*

M. Not very uncommon about Edinburgh. Arrives in the end of April, frequenting at first ploughed fields, and disappears about the middle of August. Sometimes plentiful in Dalry meadows.

E. Arrived on 26th May 1838, and disappeared on 29th August. Extremely rare, insomuch that it might be reckoned among the stragglers. Last season I only saw two individuals, one in May, the other in August.

4. *Grey-and-White Wagtail. Motacilla alba.*

M. I have shot Wagtails at Musselburgh which I believe to have been of this species, but have not preserved specimens.

5. *Grey-and-yellow Wagtail. Motacilla Boarula.*

M. Although individuals frequently remain all winter, there is an influx in the end of March.

6. *Whin Bushchat. Fruticicola Rubetra.*

M. Arrives in the end of April, and departs in the beginning of October. Not uncommon among whins on the Pentland Hills, and scattered here and there in favourable places.

W. Generally first seen about the last week of April.

E. Arrived on 15th May 1838. Extremely rare.

7. *White-rumped Stonechat, or Wheatear. Saxicola Œnanthe.*

M. Arrives from the middle of March to the middle of April, and departs in the end of September. King's Park, Pentland Hills, quarries, and stone-walls. Not uncommon.

W. Generally appears on Bathgate Hills about the beginning of April. First observed in 1839 on the 4th. On the 6th May two pairs seen building their nests under stones in a limestone quarry.

E. Arrived on 12th April 1839. Departed on 28th August 1838. Common.

8. *White-fronted Redstart. Ruticilla Phœnicurus.*

M. Arrives in the end of April, and departs about the middle of October. Not very rare.

W. Arrives usually about the middle of April. For the last three years very few seen about Bathgate.

E. Arrived on 27th April 1839. Rather rare.

9. *Black-capped Warbler. Sylvia Atricapilla.*

M. Arrives in the beginning of May. Very rare. Dean House, Braid Hermitage, Colinton, Canaan, and the Duke of Buccleuch's Park at Dalkeith.

W. In the neighbourhood of Bathgate, occasionally appears about the beginning of May. On the 3d, 4th, and 5th of May 1839, three remained in my shrubbery. One of them sung most beautifully when perched upon the top of a tall ash tree at my garden door; its notes were clear and well defined.

E. A pair seen on 11th May 1839, in a sloe brake, in the glen of the Whittingham Water below Papal.

10. *Garden Warbler. Sylvia hortensis.*

W. Very shy, and seldom seen. I have however heard for several successive years, two or three pairs of them in the neighbourhood pour forth their sweet and mellow notes, perched sometimes upon the top of some tall tree, or the centre of some close retreat. In the beginning of July 1838, I discovered a nest with five eggs in Kinneil Wood, belonging to the Duke of Hamilton. It was built in a thicket of brambles, sloe, &c., about two feet from the ground.

11. *White-throated Warbler, or White-throat. Sylvia cinerea.*

M. Arrives in the beginning of May. Very abundant in hedges and thickets. Departs in the end of September.

W. A great many of this species usually appear about Bathgate in the end of April, or beginning of May.

E. Arrived on 1st May 1839. Departed on 10th September 1838. Rather common.

12. *White-breasted Warbler, or Lesser White-throat. Sylvia garrula.*

M. Arrives about the 10th of May. Extremely rare.

W. In the end of May 1838, I observed in a plantation at Wallhouse a bird which answered the description of the Lesser White-throat. It was exceedingly shy and quick in its motions.

E. Arrived on 14th May 1839. Departed on 8th September 1838. Rare.

13. *Yellow Woodwren. Phyllopneuste Sylvicola.*

M. Arrives in the beginning of May. Not very rare. Colinton and Rosslyn Woods. My son shot two on the 8th of May 1839.

W. A few pairs visit the neighbourhood of Bathgate about the first and second weeks of May.

E. Arrived on 11th May 1839. Departed on 10th September 1838. Rather rare.

14. *Willow Woodwren. Phyllopneuste Trochilus.*

M. Arrives from the 15th to the 25th of April. Very common in woods and copses. Departs late in September.

W. In the neighbourhood of Bathgate very abundant, and usually appear about the middle of April. The first seen in 1839 was on the 24th.

E. Arrived on 24th April 1839. Departed on 9th September 1838. Abundant.

15. *Chiff-chaff. Phyllopneuste Hippolais.*

M. Arrives from the 15th to the 25th of April. Extremely rare. Departs in the beginning of October.

W. Very rare about Bathgate. I have seldom seen them, and have only shot two or three specimens. I knew a nest with five eggs.

16. *Sedge Reedling. Calamoherpe Phragmitis.*

M. Arrives in the beginning of May. Rare. Duddingston Loch.

W. Very seldom seen, but commonly heard about Bathgate in the middle and end of May, sometimes singing during the whole night.

E. First seen on 4th May 1839. Extremely rare.

17. *Marsh Reedling. Calamoherpe arundinacea.*

W. Very rarely occurs in the neighbourhood of Bathgate. I have only known of one nest, which had five eggs, and was built among willows and some tall aquatic plants, on the margin of Boarbaughlaw water, about the beginning of June.

18. *Grasshopper Chirper. Sibilatrix Locustella.*

M. Arrives in the beginning of May. Extremely rare.

W. Seldom seen or heard in the neighbourhood of Bathgate. In a large and well-sheltered plantation on the banks of the Avon, belonging to W. D. Gillon, Esq. of Wallhouse, one or two, if the weather is very warm, may be heard in the evening, about the middle and end of May.

19. *Bank Swallow. Hirundo riparia.*

M. Arrives from the 20th to the end of April. Not uncommon about sandpits, quarries, and high banks. Departs in the end of September.

W. On the 10th of April 1839, a Sand Martin was seen during the whole day flying around and over Bathgate Mill-dam. On the 24th a pair visited Balbardie quarry, and on the 1st of May ten or twelve pairs were seen at the same place.

E. Arrived on 30th April 1839. Departed on 4th September 1838. Rather common.

20. *Chimney or Red-fronted Swallow. Hirundo rustica.*

M. Arrives from the 20th to the end of April. Abundant.

W. Generally appear about Bathgate in the end of April. In 1839 they first appeared on the 24th.

E. Arrived on 17th April 1839. Departed on 23d September 1838. Plentiful.

21. *House Martin, or White-rumped Swallow. Hirundo urbica.*

M. Arrives from the 25th of April to the 5th of May. Abundant.

W. Arrives in the last week of April and beginning of May.

E. Arrived on 17th April 1839. Departed on 23d September 1838. Plentiful.

22. *Swift. Cypselus Murarius.*

M. Generally arrives from the 1st to the 8th of May, and disappears about the 10th of August. Abundant.

W. Since the 20th of April, a solitary Swift has been seen flying around the ancient church of Torphichen, where several pairs annually breed. On Monday the 29th, ten of them arrived at the same place. On the 7th of May I saw fourteen of them. They flew to a great height in the air, describing extensive circles, and uttering their loud screams.

E. Arrived on 9th May 1839. Departed on 8th August 1838. Rather common.

23. *Spotted or Grey Flycatcher. Muscicapa grisola.*

M. Not extremely uncommon. A pair with young were seen by me in one of the gardens at Lauriston, in July 1838; and I have obtained several specimens in the district. Arrives late in May, and disappears early in September.

W. A pair or two have for a number of years past visited my garden regularly in the last week of May.

24. *Cuckoo. Cuculus canorus.*

M. Arrives early in May. Two were seen and heard by my son on Dalmahoy Hill, on the 4th of that month in 1837. Not rare on the Pentland Hills. Disappears in August.

W. Not seen about Bathgate before the end of April. On Monday morning, the 29th of April 1839, I observed one alight upon a tree at a little distance from my garden. What is very remarkable, I have for five or six successive years heard the Cuckoo utter its well known

note on the 1st day of May. It was not however until Saturday the 4th that it was heard here this year.

E. Arrived on 8th May 1839. Departed on 14th July 1838. The young departed on 15th September. Rather common.

25. *Nightjar. Caprimulgus europæus.*

M. Mr Carfrae has seen them in the "Meadows" at Edinburgh, near Dalkeith, and in various other places.

W. Several pairs of them generally arrive in the parish of Bathgate about the end of May, and they always resort to the same situations.

E. Arrived on 25th May 1838, and disappeared on 25th August. Rare.

26. *Turtle Dove. Columba Turtur.*

E. In the summer of 1837, I examined and dissected an individual shot near Haddington, which was presented to me by Mr Th. Fraser, Edinburgh.

27. *Quail. Coturnix dactylisonans.*

E. One was killed at Whittingham in 1836.

The summer visitants of the Grallatorial and Natatorial tribes may be deferred until another opportunity occurs.

The following notes respecting the Sky-Lark I have recently received from Mr Hepburn:—"On Wednesday, 3d April, I observed a Lark sing for 4 minutes on the ground, and 3 minutes in the air.—April 15. Sky-Larks at present sing for about 7 minutes at a time. I heard one or two sing for 11 or 12 minutes. I have shot a considerable number while singing, but as yet none of them proved to be females.—May 15th. In the early part of the night, when the moon is shining bright, and the stars have hung out their silver lamps, I have seen the Sky-Lark spring from the ground, mount aloft, and sing for 2 or 3 minutes before descending to nestle by the side of his mate. Judging from the positions in which I have seen heaps of their

excrements, I think that they generally, when paired, roost within a few inches of each other. I still see daily parties of from four to eight feeding together. The method which I adopted to ascertain whether or not the females sing was to walk in the fields, and when I perceived anything remarkable in the song of a Lark, to shoot him. I thus procured eight or nine, but none were females. My daily experience confirms me in the statement which I formerly made to you, that Larks sing less during windy than during cold weather. Yesterday, the 14th May, we had showers of snow and hail. Till 10, therm. 33°, wind W., but not high; yet the Lark was in the air. The Willow Wren, the White-throat, the Hedge Chanter, the Blackbird, the Chaffinch, and Yellow Bunting were singing gaily. To-day the wind was high, and few songs were heard, but in sheltered glens I heard many Willow Wrens, and White-throats."

p. 173 The following observations on the same subject have recently been made by Mr Weir. "It is maintained by some modern naturalists that the state of the weather has not much influence on the songs of birds, except so far as it may affect their supply of food. All I can say is, that for these eight or ten days past, which have been uncommonly cold, with a strong east wind, the sweet and harmonious song of our Sky-Lark, known and admired by all, has scarcely been heard in this neighbourhood, and when heard, its duration has been very short.

During the most part of the 14th May (1839) I paid some attention to the singing of the Larks. In the forenoon and the greater part of the afternoon, it was very cold, with showers of snow, the wind from the east, and the thermometer between 37° and 40°. I saw and heard a considerable number of them singing. Most of them however sung only about a minute and none above two minutes. Between five and six in the evening the wind changed to the west, and it became considerably milder. I observed one continue to mount in the air, and sing in full melody for the space of five minutes. It soared to a very great height, and took about half a minute in descending. I saw another remain in the air singing for four minutes;

it then came down with the rapidity of an arrow.—15th May. During this forenoon, the ground being covered with snow to the depth of about six inches, and the thermometer at 46°, I noticed several singing in the air; none of them however continued more than half a minute.—16th May. Between four and six o'clock this morning, most of the Larks sung upon the ground, or on the top of a wall; some of them ascending in the air; their song did not exceed two minutes in duration. It was a cold north-west wind, the thermometer 38°. During the whole of the day I did not hear another.—17th May. Between one and two o'clock this morning, several Larks were singing, some upon the ground, and others appeared in the air. Their song did not continue above two minutes. About three o'clock they all ceased, and were not heard again during the day. Thermometer in the morning 38°, at noon 50°. It blew a hurricane from the south-west. About twenty minutes after nine o'clock in the evening, I heard one sing for about three minutes.—Monday, 20th May. Clear and sunny, with a cold wind from the north-west; thermometer 54°. I watched their motions from eleven to five o'clock. During that time I heard and saw a great many. Only one sang four and a half minutes; another three and a half; all the rest not above two minutes.—21st May. This day, which was sunny, with a cold and strong wind from the north, the thermometer 46°, very few sang, and of those which did, none continued above two minutes.—25th May. During the afternoon, when the wind was in the south-west, and the thermometer 56°, I saw two Larks singing in the air, one of them continued six, the other five minutes.—27th May. Very sunny, but the wind cold, from the noth-west, and the thermometer 50°. I heard and saw a great many singing; none of them however continued above three minutes.—28th May. Bright sunshine, wind south-east, thermometer 60°. I saw a considerable number this forenoon. Between eleven and twelve, I observed one singing in the air for about *eight* minutes. Two or three continued five; some four, and several about three minutes."

Having, through Mr Audubon, obtained from Paris, a collection of French birds, selected by his friend Dr Trudeau, among which is a fine series of Motacilla alba and Budytes flava, I embrace the opportunity thus offered of instituting a comparison between them and specimens of our Pied and Yellow Wagtails.

Motacilla alba and Motacilla Yarrelli.

On comparing ten British specimens of *Motacilla Yarrelli* with ten French specimens of *Motacilla alba* procured in the neighbourhood of Paris, I find that of the French birds four have the bill somewhat more slender than that of any of the British, four have it equal in thickness to that of six of the British, while in two it is equally broad at the base, and considerably longer. The tarsus in the French birds is generally more slender, and the claws are longer, but in all the specimens, French and British, the tarsus is eleven twelfths of an inch in length. Two of the French birds which have the smallest bills, have the back black, and although nine of them have been killed in April and May, and consequently have assumed the black on the fore-neck and head entirely or nearly, five have the back light grey, two deep black, two partly black and partly grey. Some of these black-backed birds being thus as darkly coloured as the finest old British males, that colour affords no distinctive character. A French female in its winter dress does not differ in any respect from a Scotch female at the same season. The French birds which have the upper parts grey, have them of a lighter and purer tint than those of British specimens; but the greys and yellows of French specimens of other species are equally brighter and purer than those of British specimens. Among the French birds some have the back pure grey, others grey with some new black feathers coming in, and others black. The wings and tail of the French birds are in all respects similar to those of the British. After this comparison, I cannot but consider it extremely doubtful that the White Wagtail of the Continent differs specifically from ours. The question can be finally

settled only by a person who shall study both for a long period, compare them in all their stages, carefully observe their habits, and collect a great number of specimens, nests, and eggs.

Budytes flava and Budytes Rayi.

On comparing ten French specimens of *Budytes flava* with ten British specimens of *Budytes Rayi*, I find no appreciable difference in the bill, feet, claws, wings, or tail. Five French specimens have the head, hind-neck, and cheeks greyish-blue, with a white streak over the eye ; two have the head greyish-blue, with some yellowish-green feathers interspersed and white eyebands, which are yellow behind ; another has the head greyish blue and yellow, half of the eyeband white, the other half yellow ; another has the head yellowish-green, and the eyeband yellow. In all, the cheeks are greyish-blue, except the last, in which it is green. But in another, differing in no other respect, the head is yellow anteriorly, green behind, the eyeband yellow, the cheeks green. In all, the lower parts are pure yellow ; but the chin, or upper part of the throat, in those which have the head greyish-blue and the eyeband white, is more or less white. Some of them which have the head greyish-blue have the feathers tipped with green. In all, the colours are brighter than in British specimens, in none of which is there pure greyish-blue on the head, that part being greyish-brown or brownish-grey when the tips of the feathers are abraded. The two green-headed French specimens agree precisely with two British specimens, and are obviously of the same species ; but unless as to the colouring of the head, neck, and cheeks, there is no difference between them and the others ; and even the colours of the other parts are precisely similar. On the whole, I am much inclined to think that the two species are distinct; but more extended observations than have hitherto been made are necessary to settle the question. One character by which they may be distinguished in all stages is this :—In Budytes flava, the base of the feathers on the head is greyish-blue, while in Budytes Rayi they are brownish ; hence, when the tips and margins are abraded, the parts are bluish-grey in the

former, and brown in the latter. But it is possible that the grey plumage may be merely seasonal.

Young of Budytes flava.

Five young birds shot, two on the 10th and three on the 25th of September 1835, in the neighbourhood of Paris, do not differ materially from young birds of Budytes Rayi shot in Scotland. The general colour of the upper parts is a very delicate light brownish-grey, the rump tinged with green; the wings and tail dusky, the feathers largely edged with greyish-white, the first row of small, and the secondary coverts with very pale brownish-grey. The two lateral tail-feathers on each side as in the adult, the next with a small margin of white. There is a cream-coloured band over the eye, becoming yellow behind: the lower parts are yellow, the throat and abdomen purer, the lower part of the neck tinged with red or ochre-yellow; and with some faintly dusky feathers arranged in a semicircular manner. These birds are apparently in their second plumage, the feathers being unworn.

In Motacilla and Budytes, the bills and claws vary in consequence of being more or less worn at the tip, much in the same degree as is observed in Cinclus Europæus. A large male, with the tip of the upper mandible much worn, at first sight seems a different species from a young individual, with the tip entire and extending considerably beyond that of the lower mandible.

Iv p. ~~389~~ 344.

Blackcap. Sylvia atricapilla.

Three males and a female of this species having been shot by my son in Colinton Woods, near Edinburgh, on the 31st of May and the 1st of June, I embrace the opportunity thus offered of adding some particulars to its history.

	M.	M.	M.	F.
Length to end of tail ...	$5\frac{11}{12}$	$6\frac{1}{2}$	$6\frac{5}{12}$	6
Extent of wings	$8\frac{11}{12}$	$9\frac{1}{2}$	$9\frac{2}{12}$	$9\frac{1}{12}$
Bill along the ridge.....	$\frac{4\frac{1}{2}}{12}$	$\frac{5}{12}$	$\frac{4\frac{3}{4}}{12}$	$\frac{4\frac{3}{4}}{12}$

	M.	M.	M.	F.
Gape-line	$\frac{7\frac{3}{4}}{12}$	$\frac{7\frac{1}{2}}{12}$	$\frac{7\frac{1}{2}}{12}$	$\frac{7\frac{1}{2}}{12}$
Wing from flexure	3	$3\frac{1}{12}$	$3\frac{1}{12}$	$2\frac{11}{12}$
Tail	$2\frac{7\frac{1}{2}}{12}$	$2\frac{8}{12}$	$2\frac{1}{2}$	$2\frac{7\frac{1}{2}}{12}$
Tarsus	$\frac{9\frac{1}{4}}{12}$	$\frac{9\frac{1}{4}}{12}$	$\frac{9}{12}$	$\frac{9\frac{1}{4}}{12}$
Hind toe	$\frac{3\frac{1}{2}}{12}$	$\frac{3\frac{1}{2}}{12}$	$\frac{3\frac{1}{4}}{12}$	$\frac{3\frac{1}{2}}{12}$
Its claw	$\frac{2\frac{1}{2}}{12}$	$\frac{2\frac{3}{4}}{12}$	$\frac{3\frac{1}{2}}{12}$	$\frac{2\frac{3}{4}}{12}$
Middle toe	$\frac{6\frac{1}{4}}{12}$	$\frac{5\frac{3}{4}}{12}$	$\frac{6\frac{1}{4}}{12}$	$\frac{6}{12}$
Its claw	$\frac{2}{12}$	$\frac{2}{12}$	$\frac{2\frac{1}{4}}{12}$	$\frac{2}{12}$

His account of their manners is as follows :—" On the last day of May and the 1st of June, while searching for the Blackcap in Colinton Woods, near the spot where I had discovered a nest a few days before, I was agreeably surprised at the sight of several individuals of this species, which is considered of very rare occurrence in this neighbourhood. But unfortunately the nest which I had found was deserted before any eggs were laid, probably because the female had seen me rummaging in the neighbourhood. It was situated in a tuft of grass, among a quantity of Ægopodium Podagraria, at the root of a young ash. In structure it resembled that of the Whitethroat, but wanted the goose-grass (Galium Aparine) so invariably found about the nest of that species. It was so admirably concealed that in all probability I never should have seen it had not the bird flown out. I observed that the males, besides their regular song, uttered a variety of cries as they flew about. One bird, for instance, repeated the syllable *tic* several times in succession, while the cry of another resembled *chic*, *chic*, repeated in the same way immediately on alighting. Another imitated so exactly the sweet ditty of the Willow Wren, Phyllopneuste Trochilus, of which several were singing at the time, that I could hardly believe it until I saw its bill opening and shutting in accordance with the unusual strain. That there might be no mistake I shot him in the act. A female which I procured was perfectly mute, and as she was sitting on a low bush in a pensive attitude, resembled much the Spotted or Grey Flycatcher, five of which I had shot the day before in the same locality. The males on the contrary were

exceedingly shy, taking short flights from one tree to another, immediately on alighting emitting their cry of *tic*, *tic*, or *chic*, *chic*, seldom continuing long in one place, but searching among the leaves for insects with all the agility of a Woodwren or even a Titmouse. I noticed that they alighted by preference on the Plane-tree, Acer Pseudoplatanus, among the broad leaves of which it was difficult to get more than a glimpse of them."

Sp. 349. GARDEN WARBLER. SYLVIA HORTENSIS.

"In the same wood, where I procured the Blackcaps," says the same intelligent observer, "my attention was directed to the song of a bird which I had never heard before, of surpassing beauty, combining with all the mellowness of that of the Thrush and Blackbird, infinitely more variety and execution. On the following day I obtained a glimpse of this delightful musician, and succeeded in shooting him, when he turned out to be a beautiful specimen of Sylvia hortensis, of whose occurrence in this part of the country I had not been aware, and whose cranium will ere long form part of my collection. The song of this bird pleased me more than that of the Blackcap, or even the Nightingale, though I never heard the latter to advantage. Were I to compare its notes to those of any other bird, I know of none to which they bear a greater resemblance than those of the Blackbird, when heard at a considerable distance, on 'the crimsoned eve of a summer day.' But the song of the Fauvette is more exquisitely modulated, and possesses more of that sweetness, which may almost be said to be exclusively its own. I may here state that an individual of Parus major, on the top of an enormous Norway Fir, Pinus Abies, imitated the strain of the Garden Warbler with such exactness as to induce me to commit paricide, little imagining that I was shooting a poor Tit." To this notice I have to add an account of the digestive organs, and the measurement of the external parts. The tongue is $4\frac{1}{4}$ twelfths long, sagittate and papillate at the base, with two of the papillæ very large; it is rather narrow, slightly concave

above, horny, thin-edged, the tip rounded, deeply slit, and lacerated. The œsophagus is $1\frac{1}{12}$ long, of moderate and uniform width; the proventriculus oblong; the stomach rounded, five twelfths long, and four and a half twelfths in breadth; its lateral muscles distinct, the left much larger; the epithelium very thin, dense, rather soft, with longitudinal rugæ; the intestine ten inches long, its greatest width two twelfths; the cœca two and a half twelfths long.

Length to end of tail $5\frac{1}{12}$; extent of wings $9\frac{1}{12}$; bill along the ridge $\frac{5}{12}$, along the edge of lower mandible $\frac{8}{12}$; wing from flexure $3\frac{1}{12}$; tail $2\frac{5}{12}$; tarsus $\frac{9}{12}$; hind toe $\frac{4}{12}$, its claw $\frac{2}{12}$; middle toe $\frac{6}{12}$, its claw $\frac{2}{12}$.

To p. 404.

Habits of the Grasshopper Chirper.

"During a short residence in Norfolk, from the middle of June to the beginning of October 1838, I had almost daily opportunities of hearing the singular note of this interesting bird, which is nowhere perhaps more abundant than in the neighbourhood of Norwich, where I saw it alive for the first time. While on my botanico-entomological rambles, I was often surprised by a very remarkable cry which I frequently heard, apparently coming from the hedges skirting the road, and went to the spot in hopes of discovering some large species of Grasshopper, or mayhap a mole-cricket, or similar insect, but without success. The note, if once heard, can never be afterwards mistaken for the sound of a grasshopper or cricket, however striking the resemblance; besides, the length of time for which it is continued, provided the bird be not disturbed, is much greater. Thus, on one occasion, while watching some pike-lines, by the margin of a deep pool, I heard the trill of the Grasshopper Chirper emitted from a neighbouring hedge for at least twenty minutes, during which time the bird appeared to have been sitting on the same spot. I cannot state the period of the arrival of this bird in the eastern counties, but I observed it as late as the end of September, up to which period I regularly saw and heard my little friends in a lane through which I passed every second day on my way to the bath-house

at Heigham. Although it frequents hedges alone, in so far as I have observed, I once heard two crying in the gardens attached to the Bishop's palace at Norwich. It seldom perches on trees, but I have occasionally heard its curious cry apparently emanating from the elms in the hedge-rows, and have more than once seen it in the same situation. In all its actions, and in some measure in the choice of its abode, it much resembles the Sedge Warbler, Calamoherpe phragmitis; so much so that to-day, 1st June, on seeing some of that species skulking in a hedge near Edinburgh, I at first fancied that I again saw my Norfolk friends, and almost regretted that the procuring of a specimen put an end to the illusion. On Costessay Common, a few miles from Norwich, I never met with it, although it is abundant in all the neighbouring hedges, so much so that on a fine evening, I have at one time listened to at least a dozen, and have heard their cries even until the Goatsucker and the Bat flitting about on noiseless wings announced the close of day. A stone thrown into the hedge causes its inhabitants to renew their cry, for song it cannot be called. I have never heard any other notes uttered by this bird than that single one which has procured for it in the neighbourhood the name of Cricket-bird, from its similarity to the sound produced by the Mole-cricket, Gryllotalpa vulgaris, and indeed of many grasshoppers, although much louder. It has been stated that the Grasshopper Chirper possesses the power of ventriloquism, in common with the Corn Crake. This, however, I much doubt, as by merely lowering and raising the voice, and at the same time turning the head in various directions, the alleged ventriloquism might easily be produced. When on the ground, which, however, it seldom is, unless at the root of a hedge or thicket, where it is sufficiently protected, it advances by a sort of shuffling movement, somewhat like that of the Hedge Chanter, Accentor modularis, although in activity it far surpasses that bird. In fact, it is continually in motion, and so much does it trust to its powers of concealment for protection, that I have several times in walking slowly along a narrow lane driven the bird along for some distance, all the while emitting its note, and keeping only a few yards in advance,

yet so well hidden that it was only at intervals that a glimpse could be got of the tiny creature, which I would now and then observe on the opposite side of the hedge. Almost the only time that I saw it fairly on wing was under the following circumstances:—In one of the beautiful lanes near Costessay, a large Dragonfly (Libellula depressa) had alighted on a hedge, when, as I was stealing up to capture it, a Grasshopper Chirper flew from the opposite hedge, about twelve feet distant, and pounced upon the insect, which, however, managed to escape, although only to be presently caught by its other pursuer. It could not have been for the purpose of destroying so large an insect for food that the bird made this attack; and yet I have seen on the Braid Hills a still larger Dragonfly (Æshna grandis) pursued in like manner by a Pipit, Anthus pratensis, which made several pounces at it, but without effect." The above notice is written by my son.

p. 394.

Sedge Reedling. Calamoherpe phragmitis.

Mr. John MacGillivray

Two males shot by ~~the same person~~, by a hedge, in Gorgie Meadows, near Edinburgh, on the 1st of June 1839, present the following measurements:

Length to end of tail, $5\frac{4}{12}$, $5\frac{2\frac{1}{2}}{12}$; extent of wings, $7\frac{1}{12}\frac{0}{}$, $7\frac{1}{12}\frac{0}{}$; bill along the ridge, $\frac{5}{12}$, $\frac{4\frac{3}{4}}{12}$; gape-line, $\frac{7\frac{1}{4}}{12}$, $\frac{7\frac{1}{4}}{12}$; wing from flexure, $2\frac{7\frac{1}{2}}{12}$, $2\frac{7\frac{1}{2}}{12}$; tail, $2\frac{1\frac{1}{2}}{12}$, $2\frac{1\frac{1}{2}}{12}$; tarsus, $\frac{9\frac{1}{4}}{12}$, $\frac{9\frac{1}{4}}{12}$; hind toe, $\frac{4}{12}$, $\frac{4}{12}$; its claw, $\frac{4\frac{1}{2}}{12}$, $\frac{4\frac{1}{2}}{12}$; middle toe, $\frac{6\frac{1}{2}}{12}$, $\frac{6}{12}$; its claw, $\frac{2\frac{3}{4}}{12}$, $\frac{3}{12}$.

Tongue four and a half-twelfths long, sagittate and papillate at the base, with two of the papillæ very large; narrow, horny, and thin-edged, the tip with two bristle points; œsophagus one inch and eight-twelfths long; stomach roundish, one inch and four and a half-twelfths long, four and a half-twelfths broad, the lateral muscles rather thick, the left much larger; epithelium very thin, with broad rugæ; intestine nine and a quarter inches long, its greatest width one and a half twelfth; cœca one and a half twelfth long, nine-twelfths from the extremity.

Pl. 63.

Cinclus Europæus.

I have been favoured by Mr Weir with the following notice. "Friday Evening, 17th May 1839, half-past nine. I am now sitting before a blazing fire, exceedingly cold, having just returned from watching, for a long time this day, the young Dippers in their nest under the waterfall on the river Avon (see p. 62). It contained five young ones. During the time that I watched the old birds, they usually fed their offspring between thirty and forty times each hour. Notwithstanding the great quantity of insects which they received, they never appeared to be satisfied, for when their parents came in view, they stretched their heads out of the door of their dwelling, and set up a strong chirping, which was heard at a considerable distance. When I observed the old ones, they procured all their food at the bottom of the water, chiefly in the stream. They generally dived from a stone, and after a submersion of some seconds reappeared with the larvæ of some aquatic insects. They sometimes however did this seven or eight times before they succeeded. This perhaps might have been owing to the state of the water, as it was then pretty muddy. They carried away all the droppings of their brood in their bills, and let them fall into the water, at the distance of about forty and fifty yards from their residence. When I put my hand into the nest, to feel if they were ripe, one of them flew out into the middle of a broad and deep pool, and dived with the greatest rapidity. It must have swam to a considerable distance, as I could not see it again, although I watched the sides of the river with the greatest circumspection."

Mr Hepburn informs me that he has in his neighbourhood recently met with the Garden Warbler, Sylvia hortensis; the Sedge Reedling, Calamoherpe phragmitis; and several specimens of the Blackcap, Sylvia atricapilla.

It was my intention to include in this volume the remaining Terrestrial and Aërial birds, with the exception of the Raptores; but it has been found that these groups would occupy nearly four hundred pages. I have therefore to intimate that the Third Volume, which is now in progress, will appear on the 1st of February next, and will contain the orders Reptatores, Immersores, Volitatores, Excursores, and Raptores. Should these volumes be favourably received, the Fourth, containing the Grallatorial, and the Fifth and last, occupied by the Natatorial series, will be brought forward at intervals shorter than that which is marked by the dates of the present and the first volume. The intelligent reader may form a sufficiently correct estimate of the labour aud expense necessary for presenting so extensive a work to the public, to enable him to perceive that any recommendation of it which his estimate of its merits may permit him to make, will be gratifying to the publishers as well as the author.

EXPLANATION OF THE PLATES.

Plate X. Respiratory and Vocal Organs of the Blackbird, Turdus Merula.

Fig. 1. *Respiratory and Digestive Organs of the Blackbird exposed* in situ.

a, the bill.
b, *b*, stylo-hyoideus.
c, *c*, branches of hyoid bone.
d, uro-hyal bone.
e, *f*, œsophagus.
g, stomach.
h, *i*, *j*, duodenal fold of intestine.
k, anus.
l, pectoral muscle.
m, heart.
n, right lobe of the liver.
o, left lobe of liver.
p, *p*, lungs.
q, *r*, *s*, trachea.
t, bifurcation of trachea.
u, *u*, bronchi.
v, *v*, contractor or sterno-tracheal muscles.
w, inferior laryngeal muscles.

Fig. 2. *Trachea of a Blackbird, with its Muscles.*

a, *b*, trachea.
b, *b*, cleido-tracheal muscles.
c, *c*, lateral or contractor muscles.
d, *d*, small slips.
e, *e*, sterno-tracheal slips.
f, *f*, bronchi.

Fig. 3. *Tongue, Hyoid Bones, and Larynx.*

a, tongue.
b, *b*, horns of the hyoid bone.
c, ligament.
d, aperture of glottis.
e, Trachea.
f, *f*, cleido-thyroid muscles.
g, *g*, lateral muscles.

Fig. 4. *Bones of the Larynx with two pairs of Muscles, the Arytenoid and Thyro-cricoid.*

Fig. 5. *Thyro-arytenoid Muscles.*

Fig. 6. *Thyro-cricoid Muscles.*

Fig. 7. *Bifurcation of Trachea.*

Fig. 8. *Last entire Ring of Trachea.*

Fig. 9. *Lateral view of Inferior Laryngeal Muscles.*

a, anterior internal muscle.
b, anterior external muscle.
c, posterior muscle.
d, intermediate muscle.
e, sterno-tracheal muscle.

Fig. 10. *Posterior view of Inferior Larynx.*

Plate XI. Respiratory and Vocal Organs of the Rook, Corvus frugilegus.

Fig. 1. *Respiratory, Vocal, and Digestive Organs of the Rook.*

a, the tongue.
b, uro-hyal bone.
c, *c*, horns of hyoid bone.
d, *d*, genio-hyoidei.
e, *e*, stylo-hyoidei.
f, *f*, cleido-thyroidei.
g, *h*, *i*, œsophagus.
j, proventriculus.
k, stomach.
l, *m*, *n*, *n*, duodenum and rectum.
o, *o*, *p*, trachea.
q, inferior larynx, with its muscles.
r, *r*, bronchi,
s, *s*, contractor muscles.
t, *t*, lungs.
u, *u*, aperture communicating with the thoracic cells.
v, *v*, *v*, three pairs of muscular slips analogous to the diaphragm.
1, 2, 3, 4, 5, 6, 7, ribs.

Fig. 2. *Hyoid Bone.*

a, glosso-hyal element.
b, basi-hyal.
c, uro-hyal.
d, *d*, apo-hyal.
e, *e*, cerato-hyal.
f, *f*, terminal cartilages.

Fig. 3. *Aperture of the Trachea or Glottis.*

a, base of tongue.
b, *b*, branches of hyoid bone.
c, rima glottidis.
d, triangular vacuity.
e, elastic ligament.
f, *f*, oval pad covered by papillæ.

Fig. 4. *Bones of the Larynx viewed from before.*

a, thyroid bone.

Fig. 5. *Bones of the Larynx viewed from behind.*

a, thyroid bone.
b, *b*, appendages to the thyroid bone.
c, cricoid bone.
d, *d*, arytenoid bones.
e, *e*, anterior margin of thyroid bone with the two arytenoid ligaments.

Fig. 6. *Bones of the Larynx viewed laterally.*

a, thyroid bone.
b, its appendage.
c, cricoid.
d, arytenoid.
f, *f*, cartilage appended to the arytenoid.
g, rings of trachea.

Fig. 7. *Bones of the Larynx viewed from behind.*

a, thyroid.
b, *b*, its appendages.
c, cricoid.
d, *d*, arytenoid.

Figs. 8, 9, 10, 11, 12. *Muscles of the Larynx.*

1, 1, thyro-hyoidei.
2, 2, thyro-arytenoidei, or apertores glottidis.
3, 3, arytenoidei-obliqui.
4, 4, thyro-cricoidei.
5, 5, thyro-cricoidei postici.

Fig. 13. *Bifurcation of the Trachea.*

a, *a*, *b*, last entire ring.

Fig. 14. *Last entire Ring of Trachea, viewed from beneath.*

Fig. 15. *Bifurcation of Trachea and Bronchi viewed from beneath.*

a, bone of divarication.
b, *b*, last or divided tracheal rings.

Fig. 16. *Inferior Laryngeal Muscles.*

a, anterior internal muscle.
b, anterior external muscle.
c, intermediate muscle.
d, posterior muscle.

Fig. 17. *Trachea of the Nightingale.*

Plate XII. Respiratory and Vocal Organs of Pigeons, Grouse, and Parrots. *Full size.*

Fig. 1. *Trachea of Wood Pigeon, Columba Palumbus, viewed from before.*

a, the tongue.
b, *b*, processes of hyoid bone.
c, *d*, *e*, trachea.
f, thyro-hyoid muscles.
g, *g*, contractor or lateral muscle, with their sterno-tracheal slips.
h, *h*, single pair of inferior laryngeal muscles.

Fig. 2. *Lateral view of Inferior Larynx or Syrinx.*

a, sterno-trachealis.
b, tensor of the membrane of the syrinx.
c, membrane of the syrinx.

Fig. 3. *Last entire Ring, not divided.*

Fig. 4. *Glottis, viewed from behind.*

a, tongue.
b, *b*, processes of hyoid bone.
c, aperture of glottis.
d, trachea.
e, *e*, lateral muscles.

Fig. 5. *Bones of the Larynx.*

a, thyroid.
b, its posterior prolongation.
c, cricoid.
d, arytenoid.

Figs. 6, 7. *Rings of Trachea.*

Fig. 8. *Trachea of the Brown Ptarmigan, Lagopus scoticus.*

a, the tongue.
b, *b*, apo-hyal and cerato-hyal bones.
c, trachea.
d, *d*, cleido-tracheal muscles.
e, *e*, sterno-tracheal slips.
f, inferior larynx, entirely destitute of muscles.
g, *g*, bronchi.
h, *h*, lungs.

Fig. 9. *Trachea of Psittacus ochrocephalus.*

a, glosso-hyal bone.
b, basi-hyal bone.
c, uro-hyal bone.
d, *d*, apo-hyal bones.
e, *e*, cerato-hyal bones.
f, thyroid bone.
g, its appendages.
h, cricoid bone.
i, arytenoid bones.
j, *k*, trachea.
k, inferior larynx.
l, *l*, sterno-tracheal slips.
m, *m*, outer muscles.
n, *n*, inner muscles.

Fig. 10. *Inferior Larynx, viewed laterally.*

a, rings of trachea.
b, last entire ring.
c, dimidiate terminal ring.
d, first bronchial ring.

Figs. 11, 12. *Muscles of the Larynx.*

11, thyro-hyoidei.
12, thyro-cricoidei.

Figs. 13, 14. *Muscles of the Syrinx.*

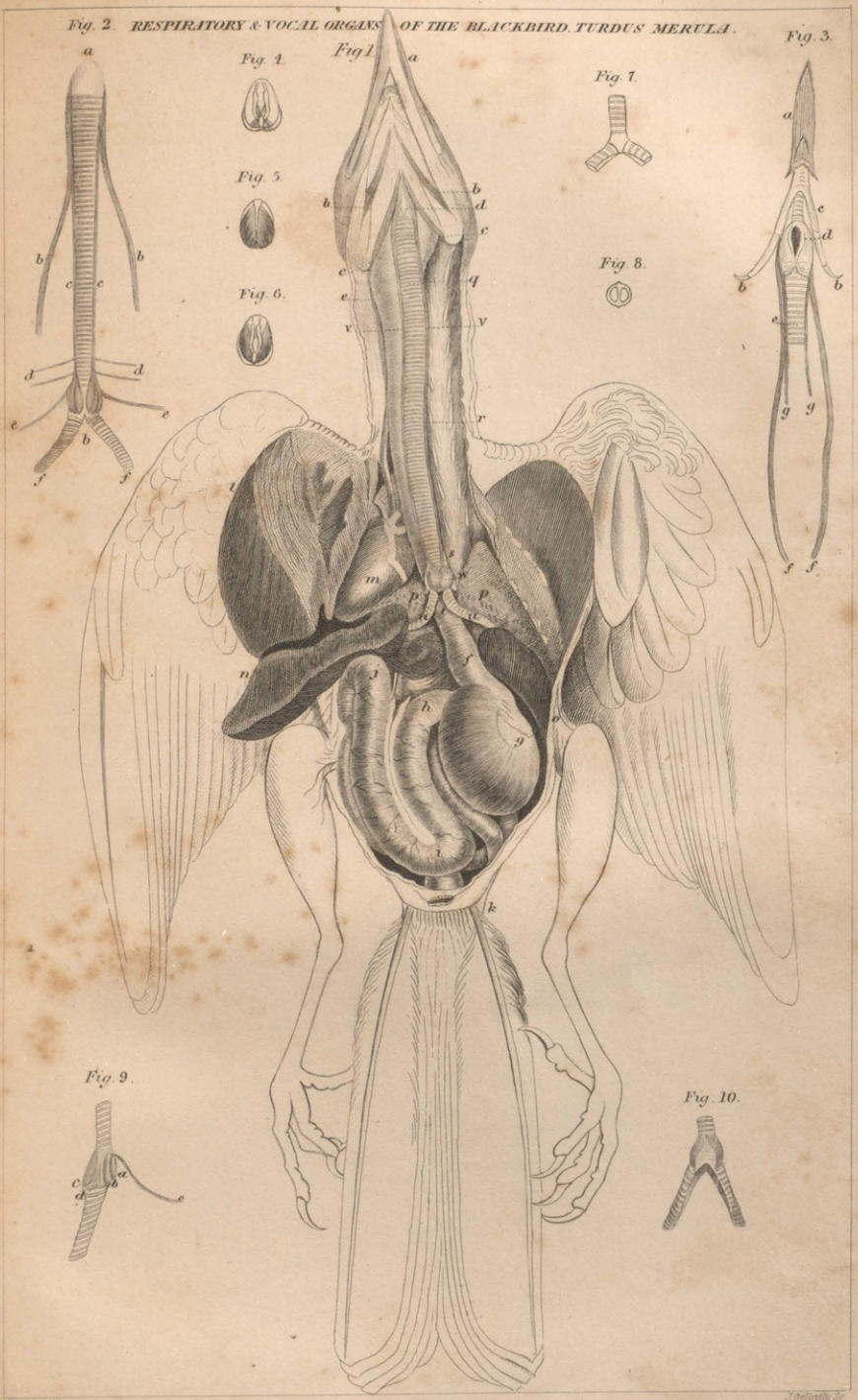
13, inner muscle.
14, outer muscle.

Plate XIII. Digestive Organs of Cantatores. *Half size.*

In all the Figures, the tongue is marked *a*; the œsophagus, *b c d*; proventriculus, *c d*; stomach, *e*; intestine, *f g h i j*; cœca, *i*; cloaca, *j*.

FIG. 1. *Dipper.*
FIG. 2. *Blackbird.*
FIG. 3. *Ring Ouzel.*
FIG. 4. *Shore Lark.*
FIG. 5. *Pied Wagtail.*
FIG. 6. *Hedge Chanter.*
FIG. 7. *Nightingale.*
FIG. 8. *Blackcap.*
FIGS. 9, 10, 11. *Blue Tit.*
FIG. 12. *Coal Tit.*

Fig. 2. RESPIRATORY & VOCAL ORGANS OF THE BLACKBIRD. TURDUS MERULA.

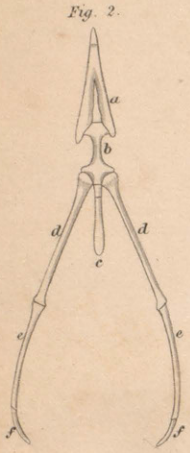


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PLATE XI.

RESPIRATORY & VOCAL ORGANS OF THE ROOK, CORVUS FRUGILEGUS.


Fig. 2.

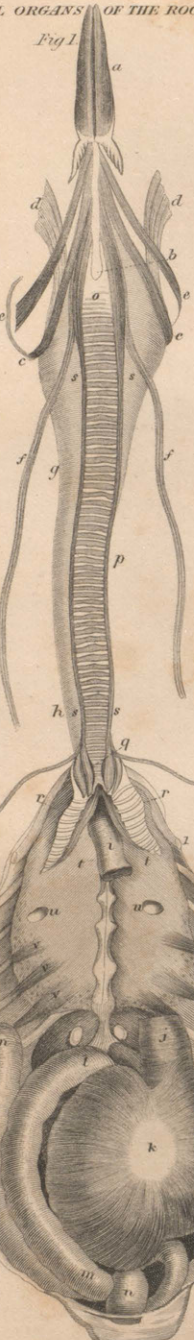

Fig 1


Fig. 3.


Fig. 4.


Fig. 5.


Fig. 6.

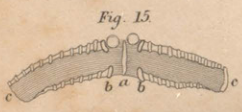

Fig. 12.


Fig. 7.


Fig. 9.


Fig. 13.


Fig. 14.


Fig. 15.

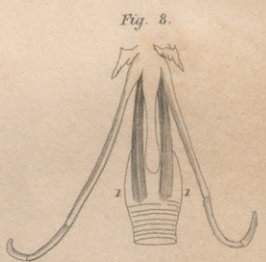

Fig. 8.


Fig.17


Fig. 16.


Fig. 10.

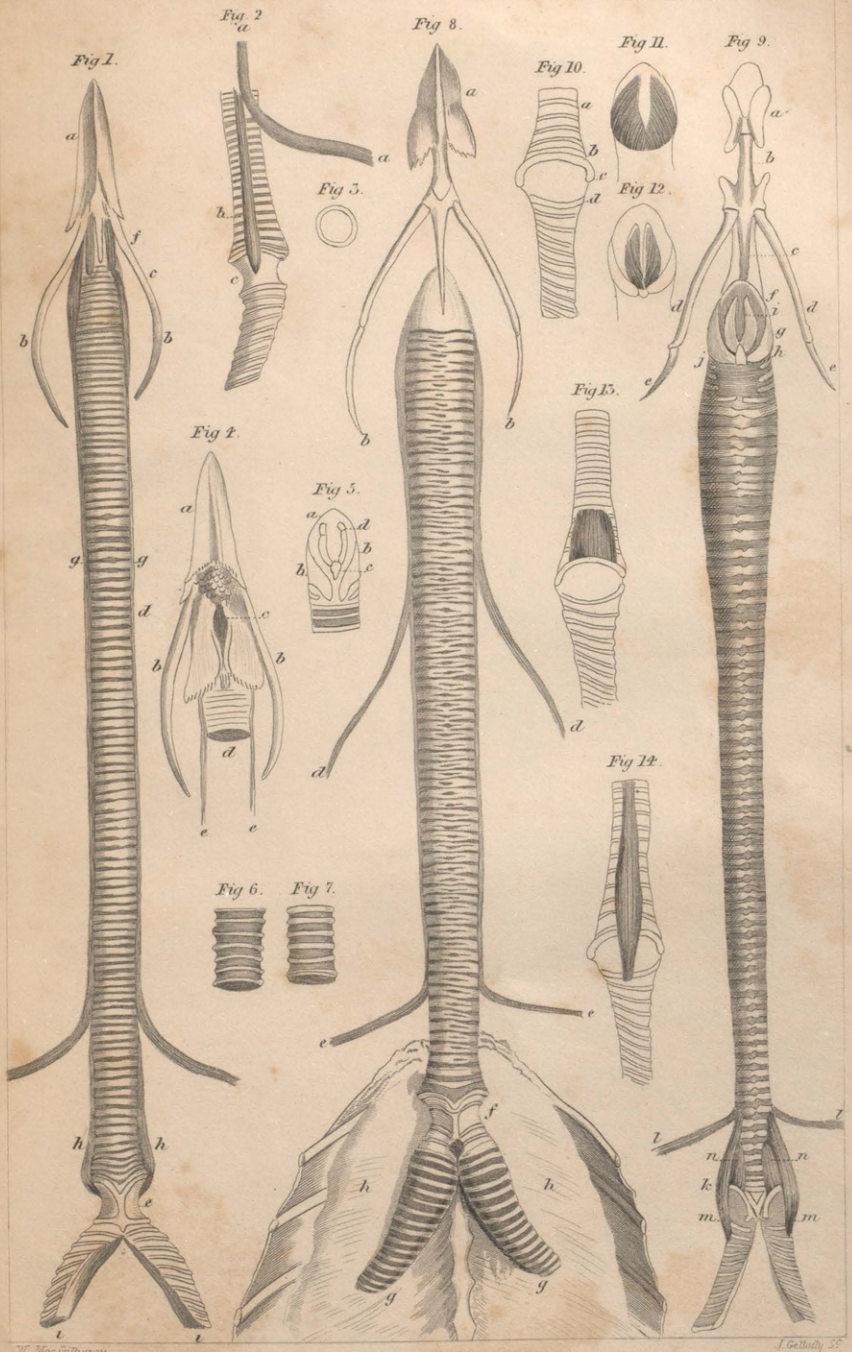

Fig. 11.

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RESPIRATORY AND VOCAL ORGANS OF PIGEONS GROUSE & PARROTS



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PLATE XIII.

DIGESTIVE ORGANS OF CANTATORES

Fig. 1 Dipper

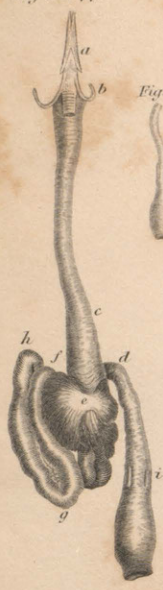


Fig. 11



Fig. 10



Fig 2. Blackbird



Fig 12 Coal Tit



Fig 3. Ring Ouzel



Fig 9. Blue Tit



Fig 4. Shore Lark



Fig 5. Wagtail



Fig 6. Hedge Chanter



Fig 7. Nightingale

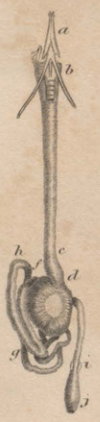


Fig 8. Black Cap



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INDEX TO THE SPECIES DESCRIBED.

The Approved Names only are employed, the Synonymes and Provincial Names being excluded.

Accentor alpinus, . *Page* 258
Accentor modularis, . 251
Alauda alpestris, . 159
Alauda arborea, . . 174
Alauda arvensis, . 163
Alpine Chanter, . . 258
Anthus aquaticus, . 194
Anthus arboreus, . . 188
Anthus pratensis, . 181
Anthus Richardi, . . 199

Blackbird, . . 81
Black-breasted Redstart, . 311
Blackcap, . . 339
Black-capped Warbler, . 339
Black-headed Bushchat, 279
Black Thrush, . . 81
Blue-headed Quaketail, . 208
Blue-throated Redstart, . 300
Blue Tit, . . 431
Brake Nightingale, . 321
Budytes flava, . 208
Budytes Rayi, . 212
Bushchat, Black-headed, 279
Bushchat, Whin, . . 273

Calamoherpe arundinacea, 393
Calamoherpe phragmitis, . 390
Chanter, Alpine, . 258
Chanter, Hedge, . . 251
Chestnut-backed Thrush, 105
Chiff-chaff, . . 379
Chirper, Grasshopper, . 399
Cinclus Europæus, . . 50
Coal Tit, . . 440
Crested Tit, . . 450

Dipper, European, . 50

Erithacus Rubecula, . *Page* 263
European Dipper, . 50

Fieldfare, . . 105
Fire-crowned Kinglet, . 416
Fruticicola Rubetra, . 273
Fruticicola Rubicola, . 279
Furzeling, Provence, . 383

Garden Warbler, . 345
Golden-crowned Kinglet, . 408
Golden Oriole, . . 73
Grasshopper Chirper, . 399
Green-headed Quaketail, 212
Grey-and-white Wagtail, . 221
Grey-and-yellow Wagtail, 235

Hedge Chanter, . . 251

Kinglet, Fire-crowned, . 416
Kinglet, Golden-crowned, . 408

Lark, Shore, . . 159
Lark, Sky, . . 163
Lark, Wood, . . 174
Long-tailed Mufflin, . 454

Marsh Reedling, . 395
Marsh Tit, . . 445
Mavis, . . 127
Meadow Pipit, . . 181
Mecistura longicaudata, 454
Melizophilus provincialis, . 383
Missel Thrush, . 114
Motacilla alba, . . 220
Motacilla Boarula, . 235
Motacilla Yarrelli, . . 225
Mufflin, Long-tailed, . 454

Nightingale, Brake, . *Page* 321
Oriole, Golden, . 73
Oriolus Galbula, . . 73
Ouzel, Ring, . . 100
Ox-eye Tit, . . 425

Parus ater, . . 440
Parus cœruleus, . . 431
Parus cristatus, . 450
Parus Fringillago, . . 425
Parus palustris, . 445
Pettychaps, . . 345
Philomela Luscinia, . 321
Phyllopneuste Hippolais, . 379
Phyllopneuste Sylvicola, 364
Phyllopneuste Trochilus, . 371
Pied Wagtail, . 225
Pipit, Meadow, . . 181
Pipit, Richard's, . 199
Pipit, Shore, . . 194
Pipit, Tree, . . 188
Provence Furzeling, . 383

Quaketail, . . 208
Quaketail, Green-headed, . 212

Redbreast, Robin, . 263
Red-sided Thrush, . 141
Redstart, Black-breasted, 311
Redstart, Blue-throated, . 300
Redstart, White-fronted, 305
Redwing Thrush, . 141
Reedling, Marsh, . . 395
Reedling, Sedge, . 390
Regulus auricapillus, . 408
Regulus ignicapillus, . 416
Richard's Pipit, . . 199
Ringed Thrush, . 100
Ring Ouzel, . . 100
Robin Redbreast, . 263
Ruticilla cyanecula, . 300
Ruticilla Phœnicurus, . 305
Ruticilla Tithys, . . 311

Saxicola Œnanthe, . 289
Sedge Reedling, . . 390
Shore Lark, . . 159
Shore Pipit, . . 194
Short-winged Woodwren, 379
Sibilatrix Locustella, . 399
Sky-Lark, . . 163
Song Thrush, . . 127
Sylvia atricapilla, . *Page* 339
Sylvia cinerea, . 350
Sylvia hortensis, . . 345
Sylvia garrula, . 357
Stonechat, . . 279
Stonechat, White-rumped, 289

Thrush, Black, . . 81
Thrush, Chestnut backed, 105
Thrush, Fieldfare, . . 105
Thrush, Missel, . 114
Thrush, Red-sided, . 141
Thrush, Redwing, . 141
Thrush, Ringed, . . 100
Thrush, Song, . 127
Thrush, Variegated, . 146
Tit, Blue, . . 431
Tit, Coal, . . 440
Tit, Crested, . . 450
Tit, Marsh, . . 445
Tit, Ox-eye, . . 425
Tree Pipit, . . 188
Turdus iliacus, . 141
Turdus Merula, . . 81
Turdus musicus, . 127
Turdus torquatus, . . 100
Turdus varius, . 146
Turdus viscivorus, . . 114

Variegated Thrush, . 146

Wagtail, Grey-and-white, . 221
Wagtail, Grey-and-yellow, . 235
Wagtail, Pied, . 225
Warbler, Blackcapped, . 339
Warbler, Garden, . 345
Warbler, White-breasted, . 357
Warbler, White-throated, 350
Wheatear, . . 289
Whin Bushchat, . 273
Whinchat, . . 273
White-breasted Warbler, 357
White-fronted Redstart, . 305
White-rumped Stonechat, 289
Whitethroat, . . 350
White-throated Warbler, 350
Willow Woodwren, . 371
Wood-Lark, . . 174
Woodwren, Short-winged, . 379
Woodwren, Willow, . 371
Woodwren, Yellow, . 364

Yellow Woodwren, . 364

GENERAL INDEX.

Accentor, 246, 249.
Accentor alpinus, 246, 258.
Accentor modularis, 246, 251.
Air-cells, 16.
Alauda, 153, 155.
Alauda alpestris, 153, 159.
Alauda arborea, 154, 174.
Alauda arvensis, 153, 163.
Alaudinæ, 150.
Alpine Chanter, 246, 258.
An Gobhchan uisge, 50.
Antcatchers and allied species, 45.
Anthus, 154, 178.
Anthus aquaticus, 154, 194.
Anthus arboreus, 154, 188.
Anthus pratensis, 154, 181.
Anthus Richardi, 154, 199.

Babbling Warbler, 357.
Babillard, 357.
Beardy, 350.
Billy-biter, 431.
Billy Whitethroat, 345.
Bird, Cricket, 399.
Bird, Oat-seed, 212.
Black-and-white Wagtail, 225.
Blackbird, 69, 81.
Blackbird, Moor, 100.
Blackbird, White-breasted, 100.
Black-breasted Redstart, 248, 311.
Blackcap, 339, 425, 485.
Black-capped Warbler, 315, 339, 485.
Black-headed Bushchat, 247, 279.
Black-headed Tomtit, 445.
Black Redtail, 311.
Black Redstart, 311.
Black Thrush, 81.
Blacky-top, 279.
Blethering Tam, 350.
Blue-bonnet, 431.
Blue-cap, 431.
Blue-headed Quaketail, 204, 208.
Blue-headed Wagtail, 208.
Blue-throated Redstart, 248, 300.
Blue Tit, 420, 431.
Blue Titmouse, 431.
Bottle Tit, 454.
Bottle Tom, 454.
Brakehopper, Sibilous, 399.
Brake Nightingale, 315, 321.
Breac-ant'sil, 225.
Broinderg, 263.
Bronchi, 16.
Brown Wood-wren, 316, 379.
Budytes, 204, 206.
Budytes flava, 204, 208, 484.
Budytes Rayi, 204, 212, 484.
Bushchat, 247, 271.
Bushchat, Black-headed, 247, 279.
Bushchat, Whin, 247, 273.

Calamoherpe, 316, 388.
Calamoherpe arundinacea, 317, 395.
Calamoherpe phragmitis, 317, 390, 490.
Cantatores, 39.
Chanter, 246, 249.
Chanter, Alpine, 246, 258.
Chanter, Hedge, 246, 251.
Charly-mufty, 350.
Chestnut-backed Thrush, 105.
Chiff-chaff, 316, 379.
Chip-chop, 379.
Chirper, 317, 397.
Chirper, Grasshopper, 317, 399, 488.
Churr, 350.
Cinclus, 47, 48.
Cinclus Europæus, 47, 48, 491.
Cinereous Wagtail, 221.
Clacharan, 289.
Coal Tit, 421, 440.
Coal Titmouse, 440.
Cock, Storm, 114.
Common Lark, 163.
Common Thrush, 127.
Common Titlark, 181.
Crested Tit, 421, 450.
Crested Titmouse, 450.
Cricket Bird, 399.

Dartford Warbler, 383.
Dick-dunnock, 251.
Digestive organs of Blackbird, Pl. XIII.
Digestive organs of Blackcap, Pl. XIII.
Digestive organs of Blue Tit, Pl. XIII.
Digestive organs of Coal Tit, Pl. XIII.
Digestive organs of Dipper, Pl. XIII.
Digestive organs of Hedge Chanter, Pl. XIII.
Digestive organs of Nightingale, Pl. XIII.
Digestive organs of Ring Ouzel, Pl. XIII.
Digestive organs of Shore Lark, Pl. XIII.
Digestive organs of Wagtail, Pl. XIII.
Dipper, 47, 48, 491.
Dish-washer, 225.
Ducker, 50.
Dunnock, 251.
Dusky Lark, 194.

Erithacus, 247.
Erithacus Rubecula, 247, 263.
European Dipper, 47, 50.

Fallow Smich, 289.
Fauvette, 345.
Fauvet, Garden, 345.
Feldyfar, 105.
Feltyfare, 105.
Feltyflier, 105.
Fieldfare, 69, 105.
Field Lark, 163.
Field Lark, short-heeled, 188.
Finch, Marygold, 408.
Fire-crested Kinglet, 318, 416.
Firetail, 305.
Fruticicola, 247, 271.
Fruticicola Rubetra, 247, 273.
Fruticicola Rubicola, 247, 279.
Furzechat, 273.
Furzeling, 316, 382.
Furzeling, Provence, 316, 383.

Garden Fauvet, 345.
Garden Ouzel, 81.
Garden Thrush, 127.
Garden Warbler, 315, 345, 487.
Glasian, 181, 194.
Gobha-dubh-nan-allt, 50.
Gobha uisge, 50.
Gold-crested Kinglet, 317, 408.
Golden-crested Wren, 408.
Golden Oriole, 69, 73.
Goldfinch, Tidley, 408.
Grasshopper Chirper, 317, 399, 488.
Grasshopper Warbler, 399.
Great Black-headed Tom Tit, 425.
Greater Pettychaps, 345.
Greater Tit, 420.
Great Titmouse, 425.
Green-headed Quaketail, 204, 212.
Grey-and-white Wagtail, 205, 221.
Grey-and-yellow Wagtail, 205, 235.
Grey Thrush, 105, 114.
Grey Wagtail, 221, 235.
Ground Wren, 371.

Hay Bird, 371, 379.
Hedge Chanter, 246, 251.
Hedge Sparrow, 251.
Hedge Warbler, 251.
Hick-Mall, 431.
Holm Thrush, 114.
Horned Lark, 159.
Huck-muck, 371, 454.

Kingsfisher, 50.
Kinglet, 317, 405.
Kinglet, Fire-crested, 318, 416.
Kinglet, Gold-crested, 317, 408.

Lark, 153, 155.
Lark, Common, 163, 480.
Lark, Dusky, 194.
Lark, Field, 163.
Lark, Horned, 159.
Lark, Meadow, 188.
Lark, Rock, 194.
Lark, Sea, 194.
Lark, Shore, 153, 159.
Lark, Sky, 153, 163, 472, 480.
Lark, Wood, 154, 174.
Larks and allied species, 150.
Laverock, 163.
Lesser White-throat, 357.
Liath-troisg, 105.
Lon Dubh, 81.
Long-tailed Mag, 454.
Long-tailed Mufflin, 421, 454.
Lungs, 15.
Lungs of the Rook, 27.

Mag, Long-tailed, 454.
Marsh Reedling, 317, 395.
Marsh Tit, 421, 445.
Marsh Titmouse, 445.
Marygold Finch, 408.
Mavis, 70, 127.
Meadow Lark, 188.
Meadow Pipit, 154, 181.
Mecistura, 421, 453.
Mecistura longicaudata, 421, 454.
Melizophilus, 316, 382.
Melizophilus provincialis, 316, 383.
Merle, 81.
Migratory Birds of East-Lothian, 4.
Migratory Birds of Mid-Lothian, 4.
Migratory Birds of West-Lothian, 4.
Missel Thrush, 70, 114.
Mistle Thrush, 114.
Mock Nightingale, 339.

Moor Blackbird, 100.
Motacilla, 205, 218.
Motacilla alba, 205, 221, 483.
Motacilla Boarula, 205, 235.
Motacilla Yarrelli, 205, 225, 483.
Motacillinæ, 202.
Mountain Ouzel, 100.
Muff, 350.
Muffet, 350.
Mufflin, Long-tailed, 421, 454.
Mufty, 350.
Mum-ruffin, 454.
Myrmotherinæ, 45.

Nettle-creeper, 345, 350.
Nightingale, 314, 319.
Nightingale, Brake, 315, 321.
Nightingale, Mock, 339.

Oat-seed Bird, 212.
Oriole, 69, 71.
Oriole, Golden, 69, 73.
Oriolus, 69, 71.
Oriolus Galbula, 69, 73.
Ouzel, 81.
Ouzel, Garden, 81.
Ouzel, Mountain, 100.
Ouzel, Ring, 69, 100.
Ouzel, Rock, 100.
Ouzel, Tor, 100.
Ouzel, Water, 50.
Ox-eye, 425, 431.
Ox-eye Tit, 425.

Parus, 420, 422.
Parus ater, 421, 440.
Parus cœruleus, 420, 431.
Parus cristatus, 421, 450.
Parus Fringillago, 425.
Parus major, 420.
Parus palustris, 421, 445.
Parinæ, 418.
Peggy White-throat, 345.
Pettychaps, 345.
Pettychaps, Greater, 345.
Philomela, 314, 319.
Philomela Luscinia, 315, 321.
Phyllopneuste, 315, 361.
Phyllopneuste Hippolais, 316, 379.
Phyllopneuste Sylvicola, 316, 364.
Phyllopneuste Trochilus, 316, 371.
Pied Wagtail, 205, 225.
Pipit, 154, 178.
Pipit, Meadow, 154, 181.
Pipit, Richard's, 154, 199.
Pipit, Rock, 194.
Pipit, Shore, 154, 194.
Pipit, Tree, 154, 188.
Poke-pudding, 454.
Practical Ornithology, 9, 462.
Provence Furzeling, 316, 383.

Quaketail, 204, 206.
Quaketail, Blue-headed, 204, 208.
Quaketail, Green-headed, 204, 212.

Redbreast, 263, 247.
Redbreast, Robin, 247, 263.
Red-sided Thrush, 141.
Redstart, 248, 298, 305.
Redstart, Black, 311.
Redstart, Black-breasted, 248, 317.
Redstart, Blue-throated, 248, 300.
Redstart, White-fronted, 248, 305.
Redtail, 305.
Redtail, Black, 311.
Redwing, 70, 141.
Reedling, 316, 388.
Reedling, Marsh, 317, 395.
Reedling, Sedge, 317, 390, 490.
Reed Warbler, 395.
Reed Wren, 395.
Regulus, 317, 405.
Regulus auricapillus, 317, 408.
Regulus ignicapillus, 318, 416.
Respiration, function of, 18.
Respiration, organs of, 14.
Respiratory and vocal organs of Blackbird, 19. Pl. X.
Respiratory and vocal organs of Brown Ptarmigan, 32. Pl. XII.
Respiratory and vocal organs of common Linnet, 29. Pl. XI.
Respiratory and vocal organs of Parrot, 33. Pl. XII.
Respiratory and vocal organs of Rook, 20. Pl. XI.
Respiratory and vocal organs of Wood Pigeon, 30. Pl. XII.
Richard's Pipit, 154, 199.
Ringed Thrush, 100.
Ring Ouzel, 69, 100.
Robin, 263.
Robinet, 263.
Robin Redbreast, 247, 263.
Rock Lark, 194.
Rock Ouzel, 100.
Rock Pipit, 194.
Ruddock, 263.
Ruticilla, 248, 298.
Ruticilla Cyanecula, 248, 300.
Ruticilla Phœnicurus, 248, 305.
Ruticilla Tithys, 248, 311.

Saxicola, 248, 285.
Saxicolinæ, 245.
Saxicola Œnanthe, 248, 289.
Screech Thrush, 114.
Sea Lark, 194.
Sedge-bird, 390, 490.

Sedge Reedling, 317, 390, 490.
Sedge Warbler, 390.
Sedge Wren, 390.
Shore Lark, 153, 159.
Shore Pipit, 154, 194.
Short-heeled Field Lark, 188.
Shrite, 114.
Shuffle-wing, 251.
Sibilatrix, 317, 397.
Sibilatrix Locustella, 317, 399, 488.
Sibilous Brakehopper, 399.
Sky Lark, 153, 163.
Smeorach, 127.
Song of Sky Lark, 472, 480.
Songsters, 39.
Song-birds of America, 469.
Song Thrush, 127.
Sparrow, Hedge, 251.
Spring Wagtail, 212.
Stanechack, 289.
Stonechat, 248, 279, 285, 289.
Stonechats and allied species, 245.
Stonechat, White-rumped, 248, 289.
Stonechatter, 279.
Stonesmich, 279.
Storm Cock, 114.
Suburban Excursion, 9.
Summer Birds of the Lothians, 474.
Summer Wagtail, 212.
Swinepipe, 141.
Sylvia, 315, 337.
Sylvia atricapilla, 315, 339, 485.
Sylvia cinerea, 315, 350.
Sylvia curruca, 315.
Sylvia hortensis, 315, 345, 487.
Sylvia Trochilus, 357.
Sylvianæ, 313.

Throstle, 127.
Thrush, 69, 77, 127.
Thrush, Black, 81.
Thrush, Chestnut-backed, 105.
Thrush, Common, 127.
Thrush, Garden, 127.
Thrush, Grey, 105, 114.
Thrush, Holm, 114.
Thrush, Missel, 70, 114.
Thrush, Mistle, 114.
Thrush, Red-sided, 141.
Thrush, Ringed, 100.
Thrush, Screech, 114.
Thrush, Song, 127.
Thrush, Variegated, 70, 146.
Thrush, Wind, 141.
Thrushes and allied species, 66.
Tidley Goldfinch, 408.
Trachea, 21.
Trachea, mechanism of the tube of, 3.
Trachea of Brown Ptarmigan, 4, 32.
Trachea of Parrot, (Psittacus ochrocephalus,) 33.
Trachea of Rook, 22.
Trachea of Wood Pigeon, 30.
Tit, 420, 422.
Tit, Blue, 420, 431.
Tit, Bottle, 454.
Tit, Coal, 421, 440.
Tit, Crested, 421, 450.
Tit, Greater, 420.
Tit, Marsh, 421, 445.
Tit, Ox-eye, 425.
Tits and allied species, 418.
Titlark, 181.
Titlark, Common, 181.
Titling, 181.
Titmouse, Blue, 431.
Titmouse, Coal, 440.
Titmouse, Crested, 450.
Titmouse, Great, 425.
Titmouse, Marsh, 445.
Tom, Bottle, 454.
Tom Tit, 431.
Tom Tit, Black-headed, 445.
Tor Ouzel, 100.
Tree Pipit, 154, 188.
Turdinæ, 66.
Turdus, 69, 77.
Turdus iliacus, 70, 141.
Turdus merula, 69, 81.
Turdus musicus, 70, 127.
Turdus pilaris, 69, 105.
Turdus torquatus, 69, 100.
Turdus varius, 70, 146.
Turdus viscivorus, 70, 114.

Uiseag, 163.

Variegated Thrush, 70, 146.
Vital functions of Birds, 13.
Voice, how produced, 23.

Wagtail, 205, 213.
Wagtail, Black-and-white, 225.
Wagtail, Blue-headed, 208.
Wagtail, Cinereous, 221.
Wagtail, Grey, 224, 235.
Wagtail, Grey-and-white, 205, 221.
Wagtail, Grey-and-yellow, 205, 235.
Wagtail, Pied, 205, 225.
Wagtail, Spring, 212.
Wagtail, Summer, 212.
Wagtail, Water, 225.
Wagtail, Winter, 225.
Wagtail, White, 225.
Wagtail, Yellow, 208, 212, 235.
Wagtails and allied species, 202.
Warbler, 315, 337.
Warbler, Babbling, 357.

Warbler, Black-capped, 315, 339, 485.
Warbler, Dartford, 383.
Warbler, Garden, 315, 345, 487.
Warbler, Grasshopper, 399.
Warbler, Hedge, 251.
Warbler, Reed, 395.
Warbler, Sedge, 390.
Warbler, White-breasted, 315, 357.
Warbler, White-throated, 315, 350.
Warbler, Willow, 371.
Warblers and allied species, 313.
Water Crow, 50.
Water Ouzel, 50.
Water Piet, 50.
Water Wagtail, 225.
Whattie, 350.
Wheatear, 289.
Wheetie-why, 345.
Whin Bushchat, 247, 273.
Whinchat, 273.
Whishey, 350.
Whisky, Scotch, commended, 470.
White-breasted Blackbird, 100.
White-breasted Warbler, 315, 357.
White-fronted Redstart, 248, 305.
White-rump, 289.
White-rumped Stonechat, 248, 289.
White-tail, 289.
Whitethroat, 345.
Whitethroat, Billy, 345.
White-throated Warbler, 315, 350.
White-throat, Lesser, 357.
White-throat, Peggy, 345.
White Wagtail, 225.
Willow Warbler, 371.
Willow Wood-wren, 316, 371.
Willow Wren, 371.
Wind Thrush, 141.
Winter Wagtail, 225.
Wood Lark, 154, 174.
Wood-wren, 315, 361.
Wood-wren, Brown, 316, 379.
Wood-wren, Willow, 316, 371.
Wood-wren, Yellow, 316, 364.
Wren, Golden-crested, 408.
Wren, Ground, 371.
Wren, Reed, 395.
Wren, Sedge, 390.
Wren, Willow, 371.

Yellow Wagtail, 208, 212.
Yellow Wood-wren, 316, 364.

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